CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION


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Regional Board Website (https://www.waterboards.ca.gov/centralvalley)


# [TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER R5-2025-XXXX

## ORDER INFORMATION

| | |
|---|---|
| **Order Type(s):** | Waste Discharge Requirements (WDRs) |
| **Status:** | Tentative |
| **Program:** | Title 27 Land Disposal |
| **Region 5 Office:** | Sacramento (Rancho Cordova) |
| **Discharger(s):** | City of Sacramento |
| **Facility:** | 28th Street Landfill |
| **Address:** | 28th and 'A' Street, Sacramento CA 95816 |
| **County:** | Sacramento County |
| **Parcel Nos.:** | 001-0170-018, 001-0170-019, 001-0170-021, 001-0170-026, 003-0010-001, 003-0042-002, 003-0050-012, 003-0050-014, 003-0050-015, 003-0050-016, 001-0170-006, 003-0032-008, 003-0032-009, 003-0032-030, 003-0032-034, and 003-0041-003 |
| **GeoTracker ID:** | T10000005189 |
| **Prior Order(s):** | 84-094, 88-207, 95-224, 96-286, R5-2004-0039 |

## CERTIFICATION

I, PATRICK PULUPA, Executive Officer, hereby certify that the following is a full, true, and correct copy of the order adopted by the California Regional Water Quality Control Board, Central Valley Region, on XX February 2025.

PATRICK PULUPA,
Executive Officer

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# GLOSSARY

**A**.....WMU-A

**Antidegradation Policy** .....Statement of Policy with Respect to Maintaining High Quality Waters in California, State Water Board Resolution 68-16

**B**.....WMU-B

**Basin Plan**.....*Water Quality Control Plan for the Sacramento and San Joaquin River Basins*

**bgs**.....Below Ground Surface

**BOD** .....Biological Oxygen Demand

**C&D** .....Construction and Demolition Materials

**CalRecycle** .....California Department of Resources Recycling and Recovery

**CAO** .....Cleanup and Abatement Order

**CAP**.....Corrective Action Program

**CAMP**.....Corrective Action Monitoring Program

**CCR** .....California Code of Regulations

**Central Valley Water Board** .....Central Valley Regional Water Quality Control Board

**CEQA**.....California Environmental Quality Act

**CEQA Guidelines**.....California Code of Regulations, Title 14, section 15000 et seq.

**C.F.R.**.....Code of Federal Regulations

**CLGB**.....Concentration Limits Greater than Background

**COCs** .....Constituents of Concern

**CPMP**.....Closure and Post-Closure Maintenance Plan

**CQA** .....Construction Quality Assurance

**CSP**.....Cannon and Scollan Properties WMUs

**GLOSSARY**

**Designated Waste** .....(a) Hazardous Waste subject to variance from management requirements per Health and Safety Code section 25143; and (b) Nonhazardous Waste containing pollutants that, under ambient conditions, could be released in concentrations exceeding applicable WQOs, or that could reasonably be expected to affect beneficial uses of water. (Wat. Code, § 13173.)

**DMP** .....Detection Monitoring Program

**DTSC** .....California Department of Toxic Substances Control

**DWR**.....California Department of Water Resources

**EC** .....Electrical Conductivity

**EIR** .....Environmental Impact Report

**EMP** .....Evaluation Monitoring Plan

**FEMA** .....Federal Emergency Management Agency

**g**.....Acceleration due to gravity on the earth's surface

**GCL**.....Geosynthetic Clay Liner

**GCCS**.....Landfill Gas Collection and Control System

**Hazardous Waste** .....Wastes which, pursuant to Title 22, section 66261.3 et seq., are required to be managed in accordance with Division 4.5 of Title 22. (Title 27, § 20164; Title 23, § 2521(a).)

**HDPE** .....High-Density Polyethylene

**JTD** .....Joint Technical Document

**LCRS** .....Leachate Collection and Removal System

**LEA** .....Local Enforcement Agency

**Leachate**.....Liquid formed by the drainage of liquids from waste or by the percolation or flow of liquid through waste. Leachate includes any constituents extracted from the waste and dissolved or suspended in the fluid. (Title 27, § 20164.)

**LFG** .....Landfill Gas

**MCE** .....Maximum Credible Earthquake

**MCL** .....Drinking Water Maximum Contaminant Level

**MDB&M** .....Mount Diablo Base and Meridian

**MDL** .....Method Detection Limit

**µg/L**.....Micrograms per Liter

**mg/L**.....Milligrams per Liter

**MPE** .....Maximum Probable Earthquake

**msl**.....Mean Sea Level

**MRP** .....Monitoring and Reporting Program

**MSW** .....Municipal Solid Waste regulated under 40 C.F.R. part 258

**MSWLF**.....Municipal Solid Waste Landfill

**MW**.....Monitoring Well

**N**.....North Area WMU

**NOV** .....Notice of Violation

**NPDES**.....National Pollutant Discharge Elimination System

**N/A**.....Not Applicable

**SMUD**.....Sacramento Metropolitan Utility District

**SPRRs** .....Standard Provisions and Reporting Requirements

**STLC**.....Soluble Threshold Limit Concentration

**Subtitle D** .....USEPA-promulgated MSW regulations under RCRA (see 40 C.F.R. part 258)

**RCRA**.....Resource Conservation and Recovery Act

**ROWD**.....Report of Waste Discharge

**SMR** .....Self-Monitoring Report

**TDS**.....Total Dissolved Solids

**Title 22**.....California Code of Regulations, Title 22

**Title 23**.....California Code of Regulations, Title 23

**Title 27**.....California Code of Regulations, Title 27

**USEPA**.....United States Environmental Protection Agency

**USGS**.....United States Geological Survey

**VOCs** .....Volatile Organic Compounds

**W**.....West Area WMU

**WDRs**.....Waste Discharge Requirements

**WMU** .....Waste Management Unit

**WQOs** .....Water Quality Objectives

**WQPS** .....Water Quality Protection Standard

# FINDINGS

The Central Valley Regional Water Quality Control Board (Central Valley Water Board) hereby finds as follows:

## Introduction

1. The City of Sacramento (Discharger) owns and operates the 28th Street Landfill (Facility), which is located in the City of Sacramento in Sacramento County, Section 32, Township 9 North, Range 5 East, Mount Diablo Base and Meridian (MDB&M). The Facility's location is depicted on the Site Location Map in **Attachment A**.

2. On 5 June 2020 the Discharger submitted a *Joint Technical Document Addendum/Amended Report of Waste Discharge (JTD/ROWD) for the combined 28th Street and Cannon/Scollan Landfills* (2020 JTD) in response to Central Valley Water Board's request for an amended Report of Waste Discharge (ROWD) dated 8 August 2018. These revised waste discharge requirements (WDRs) incorporate proposed changes to the Discharger's Facility.

3. The Facility is situated on a 172-acre property comprised of Sacramento County Assessor's Parcel Numbers (APNs) 001-0170-018, 001-0170-019, 001-0170-021, 001-0170-026, 003-0010-001, 003-0042-002, 003-0050-012, 003-0050-014, 003-0050-015, 003-0050-016, and 001-0170-006. An additional 6.5 acres associated with Cannon and Scollan Properties (CSP) acquired by the City in 2016-2017 will be added to the Facility at the time of adoption of these WDRs. The APN(s) for the CSP are 003-0032-008, 003-0032-009, 003-0032-030, 003-0032-034, and 003-0041-003. The address associated with the Facility is 28th and 'A' Street, Sacramento, California 95816.

4. The Facility is bounded by the American River to the north, Business Interstate 80 to the south, a levee containing Southern Pacific Railroad tracks to the south and to the east, and industrial properties to the west. Properties adjacent to the CSP along its's southern border include a school and residential use.

5. As the Facility's owner and operator, the Discharger is responsible for compliance with this Order, which prescribes WDRs regulating monitoring, closure and post-closure maintenance and any corrective action of the Waste Management Units (WMUs) listed in **Table 1**.

**Table 1—Summary of Waste Management Units (WMUs) Permitted under Order**

| Unit | Type | Class | Size | Status |
|---|---|---|---|---|
| WMU-A | Landfill | Class III | 79.5 acres | Closed |
| WMU-B | Landfill | Class III | 27.5 acres | Closed |
| West Area (W) | Landfill | Unclassified | 22.5 acres | Closed |
| North Area (N) | Landfill | Unclassified | 16 acres | Closed |
| CSP | Landfill | Class III | 4.5 acres[1] | Closure Pending |

See Glossary for definitions of terms and abbreviations in table.

[1]The total area of the CSP including easements is 6.5 acres. The WMU plan view footprint where waste was disposed of is 4.5 acres.

**Materials Accompanying Order**

6. The following materials are attached to this Order, and incorporated herein:

**ATTACHMENT A—SITE LOCATION MAP**

**ATTACHMENT B—WASTE MANAGEMENT UNIT LOCATIONS/ACREAGE**

**ATTACHMENT C—HISTORIC LOCATION OF THE AMERICAN RIVER IN 1893**

**ATTACHMENT D—SENSITIVE RECEPTOR MAP WITHIN 1-MILE RADIUS**

**ATTACHMENT E—STORMWATER MANAGEMENT PLAN**

**ATTACHMENT F—GROUNDWATER, SURFACE WATER, AND LEACHATE MONITORING POINTS**

**ATTACHMENT G—UNSATURATED ZONE MONITORING POINTS**

**ATTACHMENT H-1—LANDFILL PERIMETER GAS PROBE METHANE CONCENTRATIONS**

**ATTACHMENT H-2—GROUNDWATER ELEVATION AND METHANE CONCENTRATIONS AT S-21D**

**ATTACHMENT H-3—NUMBER OF VOC DETECTIONS AT GROUNDWATER MONITORING WELLS**

**ATTACHMENT H-4—INORGANIC ISO-CONCENTRATION LINES AT CONCENTRATION LIMITS**

**ATTACHMENT H-5—INORGANIC PARAMETERS ABOVE CONCENTRATION LIMITS**

**ATTACHMENT I—LANDFILL GAS COLLECTION AND CONTROL SYSTEM**

**ATTACHMENT J—LANDFILL WMU CLOSURE SPECIFICATIONS**

Standard Provisions & Reporting Requirements for Non-Hazardous Discharges of Waste Regulated under Subtitle D and/or Title 27, December 2015 Edition (SPRRs or Standard Provisions)

Information Sheet for [TENTATIVE] Waste Discharge Requirements Order (Information Sheet)

7. This Order is also accompanied by the concurrently adopted **Monitoring & Reporting Program R5-2025-XXXX (MRP)**, the provisions of which are incorporated as part of this Order. Each time the operative MRP is modified by the Central Valley Water Board or its Executive Officer, the revised version shall become the operative MRP (superseding the prior version) and be incorporated as part of this Order (i.e., in lieu of the prior version).

8. To the extent there are any material inconsistencies between the provisions of this Order, the operative MRP and the SPRRs, the provisions of this Order shall be controlling. However, to the extent a revised MRP contains new or different factual findings reflecting changed conditions or circumstances at the Facility, the revised MRP findings shall be controlling.

9. Additional information about the Facility is set forth in the **Information Sheet**, which are additional findings and are incorporated as part of these findings.

## Facility

10. The Facility consists of two classified landfill units covering 107 acres east of 28th Street (WMUs A and B), and two older, unclassified fill areas west (22.5 acres) and north (16 acres) of 28th Street. The west and north areas combined is also known as the West Site area. WMU A is a 79.5-acre unlined unit in the northern part of the site and WMU B is a 27.5-acre clay-lined expansion unit immediately south of WMU A. The unclassified fill areas are unlined.

11. The expanded Facility will also include the CSP, which will be added to the Facility at the time of adoption of these WDRs. The 6.5-acre CSP consists of two

existing unlined WMUs totaling 4.5 acres will be classified as a Class III WMU (see **Finding 39**).

12. The location of the landfill WMUs are shown on **Attachment B**.

13. WMU A is unlined and has no leachate collection and recovery system (LCRS).

14. WMU B was constructed in 1985 with a 1.5-foot-thick clay liner with a maximum permeability of $1 \times 10^{-7}$ centimeters per second (cm/s) overlain by an additional 1.5 feet of compacted soil with a maximum permeability of $1 \times 10^{-5}$ cm/s. The clay liner extends up the sides of the containment berms to an elevation varying from 27 feet above mean sea level (MSL) at the west end of the unit to 30 feet above MSL at the northeast end. The disposal area was excavated prior to construction so that the maximum depth of waste would be 15 feet above mean sea level (MSL).

15. A dendritic LCRS was installed over WMU B's compacted liner. The LCRS layer consists of a gravel blanket and perforated leachate collection piping. The collection piping drains to a collection sump/pump station at the west end of WMU B which is equipped with two 150-gallon per minute (gpm) pumps (one serving as back-up). The leachate pumps operate using a float control system, which ensures the sump is emptied when liquids accumulate to a pre-set level. However, Discharger has stated that the above ground control panel was vandalized approximately 15 years ago and is currently inoperable.[1] These WDRs, in Section I, require the Discharger to submit a work plan with a schedule of when the Discharger will repair the WMU-B LCRS pump control panel and associated pump(s) and appurtenances such that any leachate that accumulates in the LCRS may be removed and disposed of accordingly.

16. Leachate is pumped out and into the City of Sacramento's combined storm water/sanitary sewer system. The Discharger monitors leachate quality on a regular basis in accordance with the MRP.

17. A subdrain consisting of a gravel blanket with perforated pipe laterals was constructed underlying WMU B's base liner to help protect the liner from uplift due to high groundwater. The collection piping tied into a series of three dewatering pump stations located between WMU A and WMU B. The system was intended for use during WMU B's cell construction and early filling and has not operated since 1989. The Discharger's 2020 JTD demonstrated that it was

[1] Source: 2020 JTD

infeasible to maintain groundwater separation though dewatering operations due to the Facility's close proximity to the American River and the geology and hydrogeology of underlying soils beneath the WMUs (see also Corrective Action **Findings 77-79** for more information).

18. The landfill was used for disposal of non-hazardous residential, commercial, and industrial wastes, primarily collected by the City of Sacramento waste collection services. Refuse filling in the unclassified fill areas took place from approximately 1963 to 1971, while refuse filling in WMU A was from 1971 to 1986, and in WMU B from 1986 until 1994. WMUs A and B were closed with a low permeability clay cover in 1997, while the unclassified fill areas were previously capped with asphalt and/or compacted soil.

19. The Facility was previously regulated by WDRs Order No. R5-2004-0039, which was issued prior to closure of the CSP. These updated/revised WDRs prescribe closure requirements for the CSP, requirements for post-closure maintenance and monitoring for all Units listed in **Table 1,** and corrective action measures necessary to address any known releases of waste from any of the Units described in **Table 1**.

20. The Facility's classified landfills are subject to federal MSW regulations promulgated under the Resource Conservation Recovery Act (RCRA) (42 U.S.C. § 6901 et seq.) enacted in 1976 to address solid waste.

21. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated regulations that apply, in California, to parties who own or operate Class II or Class III landfill units at which municipal solid waste (MSW) is discharged. (40 C.F.R. §§ 257-258 [referred to as "federal MSW regulations" or "Subtitle D regulations"].) The Facility is subject to all Subtitle D regulations since it accepted MSW after 9 October 1991 and did not meet the applicable federal deadline for cessation of waste acceptance (9 October 1993).

22. Effective 18 July 1997, water quality regulations for Class II and Class III disposal facilities (formerly in Cal. Code Regs., tit. 23, ch. 15) and other solid waste regulations (formerly in Cal. Code Regs., tit. 14) were consolidated into California Code of Regulations, title 27 (Title 27), division 2, subdivision 1, chapters 1-7. 40 C.F.R. §§ 257-258 is implemented, in part, through the provisions in Title 27 and in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62. These WDRs implement Title 27.

23. The Facility includes the following onsite features, systems, and structures:

    a. Closed landfill WMUs (see **Table 1**)

b. Active landfill gas (LFG) collection and control system (GCCS) including LFG flares

c. Groundwater quality monitoring well network

d. Post-closure land uses including:

i. Non-irrigated open area over WMU-A and WMU-B

ii. Discharger's corporation yard used for storage, vehicle parking, and facility offices

iii. Recycle/Re-use area

iv. Large solar panel array

v. Sutter's Landing Park, which includes: public restrooms, kayak concession, building/park ranger offices, pedestrian/bike trails, paved parking, a dog park, a skate park, bocce courts, and basketball courts

**Cannon and Scollan Properties Historical Background**

24. The location of the CSP is south of the former Dellar landfill, with access off 28th street. The former Cannon and Scollan properties are two approximately 1-acre parcels (APNs 003-0032-008 and 003-0032-009) and one approximately 2-acre parcel (APN 003-0041-003). These parcels are bordered on three sides by Discharger easements, and on the south side by Union Pacific Railroad parcels. Collectively, the three parcels and surrounding easements are approximately 6.5 acres. These parcels and surrounding areas have historically been used as landfills.

25. Based on historical use information for the CSP and adjoining landfills, the period of landfilling for CSP was pre-1961, and the fill type consisted of 'garbage' (assumed to indicate domestic and municipal solid waste). The method of filling was 'little compaction, soil covered', interpreted to mean that waste was placed without engineering considerations for cover or compaction.

26. On 16 November 2016, the Local Enforcement Agency (LEA), Sacramento Environmental Management Department, issued a Notification of Requirements to the Discharger for the CSP. The LEA required the Discharger to submit a Disposal Site Remediation Work Plan (DSRWP) that would bring the unclassified waste disposal sites on the CSP into compliance with state minimum standards for cover, grading, drainage and erosion control, LFG monitoring and control, and post-closure maintenance and land use.

27. On 17 October 2017, Central Valley Water Board staff issued a letter requiring the Discharger to submit, by 28 February 2018, a Report of Waste Discharge (ROWD) (see Wat. Code, § 13260) with information needed by the Board to develop these WDRs, including description of how the Discharger proposed to manage the properties to avoid water quality impacts.

28. On 26 February 2018, the Discharger submitted a ROWD for the CSP. Central Valley Water Board staff reviewed the ROWD and indicated to the City that the ROWD, in conjunction with the Discharger's DSRWP, did not adequately address water quality concerns at the Cannon and Scollan properties related to minimizing the infiltration of liquids into the waste and thus minimizing the production of leachate and LFG at the location.

29. On 11 April 2018, the Discharger and Central Valley Water Board staff held a meeting to discuss the issues related to water quality concerns and agreed that incorporating the CSP into the Discharger's 28th Street Landfill WDRs would be the most protective and cost-effective approach for future activities at both sites. These revised WDRs incorporate the CSP into the 28th Street Landfill WDRs.

30. On 5 June 2020, the Discharger submitted an amended ROWD, as part of its Joint Technical Document (2020 JTD) for the 28th Street Landfill, which included information pertaining to the CSP.

31. Information in the Discharger's 2020 JTD, 2024 Updated Closure and Postclosure Maintenance Plan (2024 CPMP), and Self-Monitoring Reports (SMRs) were used in the development of this Order. The Discharger's 2020 JTD makes the following significant proposals:

    a. Incorporation of the CSP which the City acquired in 2016-2017 into the 28th Street Landfill WDRs

    b. Infeasibility of maintaining groundwater separation from bottom of waste

    c. Request to consider concentration limits greater than background (CLGB)

    d. Postclosure land use of CSP to include a bike trail and walking/jogging path

32. On 24 September 2024, the JTD/ROWD was deemed complete

33. The 2020 JTD included a final closure cover design for the CSP that was not initially protective of water quality due to a proposal to construct a non-contact stormwater pond over waste without installing a leak detection system to determine if the non-contact stormwater pond was discharging liquids to underlying waste. Following several iterations, the Discharger proposed a final

closure cover over CSP that is protective of water quality. These WDRs approve use of the proposed final closure cover over CSP.

**Waste Classification & Permitting**

34. The landfills in **Table 1** accepted wastes defined as “inert” and “nonhazardous” under Title 27 sections 20230 and 20220, respectively.

35. Hazardous wastes and liquid wastes have never been knowingly accepted at the landfill. However, typical early (pre-1980s) disposal procedures did not routinely check incoming wastes closely for liquids and/or hazardous wastes. In addition, all municipal wastes contain some portion of household hazardous wastes, mixed in with the non-hazardous garbage, including used oils, paints, lead-acid batteries, pesticides, etc. An assessment conducted in 1985 of the types and quantities of household hazardous waste in materials accepted at the facility found that less than 0.12 percent of the total waste stream was categorized as household hazardous waste.

36. WMU A is an existing, reclassified Class III waste management unit under Title 27 section 20080, subdivision (d), since it operated prior to 27 November 1984. WMU B is a new Class III waste management unit under section 20080, subdivision (d), because it did not receive all its permits and did not operate until after 27 November 1984.

37. Wastes were initially placed in WMU A in a cut and fill operation to an elevation of about 15 feet above MSL. WDRs Order No. 75-155 prohibited discharge of waste below an elevation of 20 feet above MSL after June 1975. About 20 to 25 feet of fill was placed from a southwest to northeast direction across the site. In 1984, the initial lift was completed and the direction of filling changed to southwesterly with an average seven-foot lift placed over the entire WMU A. Additional waste was placed in phases over the site to achieve final grades between three and ten percent (3-10%) in preparation for closure construction. WMU A reached final design elevation in November 1991.

38. At the time of closure, the landfill was permitted to accept up to 1,200 tons of waste per day. It was estimated that actual waste acceptance was approximately 600 tons of waste per day with the facility operating five and one-half (5 ½) days per week. The total capacity of the landfill, at final closure, was estimated to be 6,514,000 cubic yards. It is assumed that this applies only to the known waste disposal operations in WMUs A and B.

39. These revised WDRs classify CSP as a Class III WMU where disposal of waste occurred in the past. The CSP is being classified as a Class III WMU in

accordance with Title 27 sections 20080, subdivision (e), 21720, subdivision (c), 20240, and 20260 for the following reasons:

a. The CSP is an existing facility in accordance with Title 27 section 20080, subdivision (d);

b. The CSP accepted domestic and municipal solid waste and meets the requirements of a Class III WMU (see Title 27, §§ 20240, 20260);

c. The CSP was not completely closed with a final closure cover in accordance with Title 27 section 20950, subdivision (a)(1); and

d. The CSP without a final closure cover continues to pose a threat to receiving water quality (i.e., groundwater and surface water).

40. The existing Facility prior to inclusion of the CSP also consists of two unclassified areas, as shown in **Table 1**: the West Area (W), which is approximately 22.5 acres, and the North Area (N), which is approximately 16 acres. These two areas were used for waste disposal from approximately 1963 to 1971. The West Area and the North Area combined are also known as the "West Site area" in historical documents. Description of the two unclassified areas is as follows:

a. West Area (W) Area A: Approximately 12.5-acre, unpaved area west of 28th Street was graded to a minimum three percent (3%) slope and covered from top to bottom with two (2) feet of soil cover, six (6) inches of asphalt street grindings, two (2) feet of concrete and asphalt rubble, and six (6) inches of soil cover. This area is considered a non-industrial area.

b. West Area (W) Area B: Approximately 10 acres, west of 28th Street, was covered from top to bottom with three (3) inches of asphalt concrete (to provide an all-weather surface and prevent infiltration of water), six (6) inches of asphalt street grindings, two (2) feet of concrete and asphalt rubble, and one (1) foot of soil paved with asphalt concrete. The western portion of this area is a solar panel field. The eastern portion of this area has been developed into a dog park and is considered a non-industrial area.

c. North Area (N): Approximately 16 paved acres, north of 28th Street, was covered in the same manner as the 10-acre section described above. This area is currently used as covered parking.

41. On 19 March 2004, the Central Valley Water Board adopted WDRs Order No. R5-2004-0039, continuing to classify the Facility's WMU-A and WMU-B as Class III WMUs for the discharge of non-hazardous solid waste and municipal solid waste. This Order continues such classifications, and incorporates the CSP as a newly-classified Class III WMU, as set forth above in **Table 1**.

## Site Conditions

42. The topography of the area where the Facility was constructed is generally flat, except in developed areas (e.g., landfills, levees, freeway, railroad crossings), with natural grades less than two percent (2%) toward the west. Surface elevations in the area generally range from 25 to 40 feet above MSL. The highest point on the 28th Street Landfill is approximately 85 feet above MSL. The American River borders the landfill to the north and is the major topographic feature in the vicinity of the landfill. Other significant topographic features are man-made facilities such as the flood control levees and the highway and railway embankments.

43. The Facility lies within the Central Valley geomorphic province as defined by the United States Geological Survey (USGS, 1985). This area has been divided into five units: the Sacramento-San Joaquin Delta, flood plains, flood basins, low alluvial plains, and dissected alluvial uplands. The Facility lies within the flood plains unit that consist primarily of unconsolidated alluvial sediments. The California Department of Water Resources (DWR, 1974) has studied the subsurface geology of Sacramento County and compiled several cross sections from drillers' logs and other data. The Victor Formation is exposed at the surface throughout the Sacramento area including the area of the Facility. This formation is a mix of sand, silt, and clay deposited by shifting streams that drained the Sierra Nevada during Pleistocene age. Grain size and clay content vary considerably both laterally and vertically within the formation, and the yield from wells indicates this variability. Prior to the landfilling activities in the area, a meander bend in the river existed just west of the current 28th Street Landfill, as shown in **Attachment C**. This meander bend has resulted in a thick sand deposit that most likely forms a preferential flow pathway for groundwater.[2]

44. Underlying the Victor Formation in the vicinity of the Facility is the Fair Oaks Formation. This formation consists of poorly bedded layers of silt, clay, sand, and gravel deposited by meandering streams in the late Pliocene and early Pleistocene age. The Fair Oaks Formation bears a strong resemblance to the Laguna Formation, identified in other areas of Sacramento County (USGS, 1985), in composition and age, but features numerous beds of white to gray-white tuff and tuffaceous silts which are not present in the Laguna Formation.

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[2] Source of **Findings 42-45**: Kleinfelder Water Quality Protection Standard Report Combined 28th Street Landfill, 2020.

The Fair Oaks Formation crops out as far south as the American River and is a subsurface unit as far south as Laguna Creek, where it intertongues with the Laguna Formation.

45. The Facility is underlain by fluvial deposits of the Victor Formation. These types of deposits form ribbon like sequences of low permeability silts and clays and permeable sands and gravels. These deposits can also form preferential flow pathways within sand channels that represent the high velocity flow zones of ancestral rivers within the area referred to as paleochannels.

46. Land uses within one (1) mile of the Facility include domestic housing, industry, agriculture, recreation, and open space.

47. Significant acreage to the west of the current 28th Street Landfill, including an area known as the Dellar Property, was previously used for disposal of waste. This closed disposal site is owned by the Sylvia Dellar Survivor's Trust (Dellar Trust), through its Trustee, and is immediately adjacent to the Bell Marine Industrial Aggregates (Bell Marine) operation and the West Site (i.e., West Area) of the 28th Street Landfill. The total area of the property is 28 acres and is located on APNs 001-0160-008, 001-0160-009, 001-0160-013, 001-0160-038, 001-0160-039, and 003-0032-013. The Discharger and the Dellar Trust have a long-term easement agreement that grants the City of Sacramento access to the property for noninvasive, routine activities related to maintaining monitoring wells associated with 28th Street Landfill and a stormwater pond that collects stormwater from adjacent properties. This area is not regulated under these WDRs.

48. The approximately 19-acre Bell Marine property waste disposal site (WDS) is located at 200 28th Street in Sacramento and is assigned APNs 001-0160-010 and 001-0160-011. The property is located to the adjacent south of the American River. This property is one of several properties west of 28th Street that were historically used for waste disposal and that, based on available background information, is likely related to the adjacent City of Sacramento 28th Street Landfill. Background information indicates that the Bell Marine WDS is one of several properties included as part of a 130-acre historical fill area located north of B Street and west of 28th Street, portions of which reportedly operated as waste disposal areas from 1940 to 1971. This area is not regulated under these WDRs.

49. Other adjacent historical waste disposal sites include the Parcel 31 disposal site, which was deeded to the City of Sacramento by Blue Diamond Growers in September 2007. It contains APNs 003-0032-025 and 003-0032-031 and has a combined total area of 6.56 acres. The West Sutter's Landing Site was

purchased from Blue Diamond Growers using a Proposition 68 grant that was awarded to the City by the Wildlife Conservation Board. It contains APNs 003-0032-024, 003-0032-026, 003-0032-029, and 003-0032-032, and has a combined total area of 18.84 acres. Parcel 31 and the West Sutter's Landing Site are not regulated under these WDRs, except for a small portion of the West Sutter's Landing Site that has a contaminated remediation area along the western boundary, known as the Dellar Encroachment. The Dellar Encroachment will be properly closed in conjunction with closure of the CSP under these WDRs.

50. Another closed disposal site in the vicinity of the 28th Street Landfill is the Sacramento Municipal Utility District's (SMUD) former North City Substation, which was operational from the early 1950s until it was decommissioned in 2022. It consists of APNs 001-0160-006, 001-0160-018, and 001-0160-034, and has a combined total area of 4.48 acres. SMUD transferred this property to the City of Sacramento in November 2023. Four transmission towers remain on the site which support two parallel high-voltage power lines that cross in a north-south direction and terminate at SMUD's Substation E immediately south of the property. The City of Sacramento and SMUD have a cooperative easement agreement which allows SMUD to maintain these transmission towers and lines. This area is not regulated under these WDRs.

51. Surface water from the Facility drains to the American River, north of the Facility, which is a tributary to the Sacramento River. According to the Central Valley Water Board's *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan), the beneficial uses of the American River include: municipal and domestic use (MUN); agricultural supply (AGR); service supply (IND); power (POW); water contact recreation (REC-1); non-water contact recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); wildlife habitat (WILD); migration of aquatic organisms (MIGR); and spawning, reproduction and/or early development (SPAWN).

52. The site is underlain by 200 to 300 feet of Holocene age alluvial stream channel deposits consisting primarily of sandy silt, fine to medium grained sand, silty sand, silty clay, and clay. The upper water-bearing unit beneath the landfill is within the more permeable of these materials. Sand and sandy silt acting as aquifer material has hydraulic conductivities that range from $1 \times 10^{-4}$ to$1 \times 10^{-2}$ cm/s. Underlying the stream channel deposits, in order of depth, are the Laguna, Fair Oaks, and Mehrten Formations.

53. Groundwater elevations at the landfill vary seasonally and correspond to fluctuations in water levels in the American river. Groundwater elevations in monitoring wells are typically in the range of two (2) to 20 feet msl. At 20 feet msl,

groundwater elevations are up to five (5) feet above the base of WMUs A and B. During the winter of 1986 and the spring of 1995, groundwater elevations greater than 25 feet above MSL were measured at the landfill. Therefore, a portion of the waste in the unlined WMU A was inundated by groundwater in 1986 and 1995.

54. The Discharger has addressed inadequate groundwater separation through its compliance activities in response to Cleanup and Abatement Order (CAO) R5-2015-0739 (2015 CAO) (also see corrective action measures in **Findings 75-77**).

55. Groundwater gradients are south to southwesterly in the winter and during high river stages. Northerly groundwater gradients occur between the central portion of the landfill and the river during late spring, summer, and fall months, when the river is low. The net hydraulic gradient is to the southwest and the net groundwater flow is 30 to 50 feet per year.

56. Due to the seasonal changes in groundwater flow direction in areas of the facility adjacent to the river, monitoring wells used at this site for background water quality data are not necessarily up-gradient from the landfill at all times. Monitoring well data also indicate a significant vertical hydraulic gradient can occur in the area south of Interstate Business 80. This downward gradient is associated with pumping of a nearby agricultural supply well.

57. According to the Basin Plan, the designated beneficial uses of groundwater at the Facility are municipal and domestic drinking water supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO).

58. There are no operating drinking water supply wells within one mile of the Facility. A sensitive receptor survey[3] was conducted in 2016. The survey was conducted using the American River as a natural barrier preventing any contaminant transport to the north and a one (1)-mile radius from the southern edge of the Facility as shown in **Attachment D**. The sensitive receptor study was completed and no drinking water supply wells were confirmed in the area south of the site. Two historic wells were identified, but there is no data indicating that these wells still exist and are currently used for drinking water supply. The entire residential

[3] *Updated Evaluation Monitoring Report of Results*, SCS Engineers, March 30, 2016, File No. 01197137.06 Task 1031

and commercial area within one mile to the south of the Site is supplied by the City drinking water system.

59. Class III WMUs must be designed and constructed to withstand a maximum probable earthquake (MPE). (Title 27, § 20370.) The Discharger's site-specific seismic analysis indicates that an earthquake, occurring along the Great Valley Fault, at a closest rupture distance of 30 miles, would result in an MPE with a magnitude of 6.8, a peak ground acceleration of 0.15 g, and a return period of 100 years. The Probabilistic Seismic Hazard Assessment (PSHA) model provided on the USGS National Seismic Hazards Mapping indicates a PGA of 0.14g. The siesmic paramaters are summarized in **Table 2**.

**Table 2—Seismic Analysis**

| Earthquake | Magnitude | Peak Ground Acceleration | Return Period |
|---|---|---|---|
| Max Probable (MPE) | 6.8 | 0.15 g | 100 Years |

See Glossary for definitions of terms and abbreviations in table.

60. Based on data from the Western Regional Climate Center's nearest weather station (Sacramento 5 ESE), the Facility has an annual average precipitation of 18.15 inches, and a mean pan evaporation of 66.18 inches per year at Folsom Dam. The nearest weather station is reflective of conditions at the Facility.

61. Class III WMUs must be constructed to accommodate stormwater runoff from 24-hour precipitation events with a return period of 100 years for Class III WMUs. (See Title 27, § 20320.) According to National Oceanic and Atmospheric Administration's (NOAA) Precipitation Frequency Atlas 14, Volume 6 (rev. 2014), the Facility's 100-year, 24-hour rainfall events are estimated to result in 5.4 inches of precipitation, respectively. Source: NOAA Precipitation Frequency Data Server (https://hdsc.nws.noaa.gov/hdsc/pfds).

62. Stormwater sedimentation basins are situated at the Facility, as depicted in **Attachment E**. Usually dry during summer months, these stormwater basins will discharge to the American River or the City's combined sewer system. Landfill runoff drains by sheet flow over the side slopes and is collected in perimeter "V" ditches. Areas of differential settlement are periodically graded to prevent ponding of storm water and maintain proper drainage. Drainage ditches are lined with low permeability clay and extends to detention basins before the surface runoff leaves the Facility. Most landfill runoff is discharged into the American River at two points along the north side of the facility. The Discharger has

obtained coverage for the Facility (WDID 5S34I004477) under the State Water Board's *Statewide General Permit for Stormwater Discharges Associated with Industrial Activities* (Industrial General Permit) Order No. 2014-0057-DWQ (National Pollutant Discharges Elimination System (NPDES) No. CAS000001)for these discharges.Remaining surface water runoff is discharged to the City of Sacramento's sanitary sewer system, which flows to and is treated at the Sacramento Regional Wastewater Treatment Plant. An industrial sewer use permit for the landfill was obtained from the County of Sacramento.

63. According to the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map (FIRM) map number 06067C0180J (https://msc.fema.gov/portal), the Facility is not located within a 100-year floodplain. The Facility's containment levees, and other embankments are designed to prevent inundation or washout of waste management units due to floods with a 100-year return period.

**Monitoring Networks**

64. As of the date of this Order, the Facility's **groundwater** monitoring network consists of the existing and proposed monitoring wells listed in **Table 3** and shown in **Attachment F**.

**Table 3—Groundwater Monitoring Well Network**

| Well | Program | Monitored Unit | Water-Bearing Zone | Status |
|---|---|---|---|---|
| B-1 | Corrective Action | A, B | Shallow | Operational |
| B-3 | Corrective Action | A, B | Shallow | Operational |
| B-4 | Corrective Action | A, N | Shallow | Operational |
| B-6 | Corrective Action | A | Shallow | Operational |
| C-7 | Corrective Action | A, B | Shallow | Operational |
| C-8 | Corrective Action | A, B | Shallow | Operational |
| C-9 | Background | N/A | Shallow | Operational |
| C-10 | Background | N/A | Shallow | Operational |
| C-11S | Corrective Action | A, B | Shallow | Operational |

| Well | Program | Monitored Unit | Water-Bearing Zone | Status |
|---|---|---|---|---|
| C-11D | Corrective Action | A, B | Deep | Operational |
| C-12 | Corrective Action | W, N | Shallow | Operational |
| C-13 | Corrective Action | W, CSP | Shallow | Operational |
| C-14 | Corrective Action | W, CSP | Shallow | Operational |
| C-15 | Corrective Action | N | Shallow | Operational |
| D-16 | Corrective Action | A, B | Shallow | Operational |
| D-17 | Corrective Action | W, N | Shallow | Operational |
| D-18 | Corrective Action | W, CSP | Deep | Operational |
| D-19 | Corrective Action | W,CSP | Shallow | Operational |
| D-20 | Corrective Action | W | Shallow | Operational |
| D-21 | Detection, Evaluation | W, CSP | Shallow | Operational |
| D-22 | Detection, Evaluation | W, CSP | Shallow | Operational |
| D-23 | Detection, Evaluation | N, A, B | Shallow | Operational |
| D-24 | Detection, Evaluation | N, A, B | Deep | Operational |
| D-25 | Detection, Evaluation | W, N | Shallow | Operational |
| D-26 | Detection, Evaluation | N | Shallow | Operational |
| PZ-1 | Groundwater Elevation | A | Shallow | Operational |

| Well | Program | Monitored Unit | Water-Bearing Zone | Status |
|---|---|---|---|---|
| PZ-2 | Groundwater Elevation | A | Shallow | Operational |
| PZ-3 | Groundwater Elevation | A | Shallow | Operational |
| PZ-4 | Groundwater Elevation | W | Shallow | Operational |
| PZ-5 | Groundwater Elevation | W | Shallow | Operational |

See Glossary for definitions of terms and abbreviations in table.

65. As of the date of this Order, the Facility's **unsaturated zone** monitoring network consists of the existing and proposed monitoring points listed in **Table** 4 and shown in **Attachment G**.

**Table 4—Unsaturated Zone Monitoring Network**

| Monitoring Point | Device Type | Program | Monitored Unit | Status |
|---|---|---|---|---|
| S-1 | Gas Probe | Detection | A | Operational |
| S-2 | Gas Probe | Detection | A, W | Operational |
| S-4 | Gas Probe | Detection | W, CSP | Operational |
| S-5 | Gas Probe | Detection | W | Operational |
| S-8 | Gas Probe | Detection | N | Operational |
| S-12 | Gas Probe | Detection | A | Operational |
| S-14 | Gas Probe | Detection | B | Operational |
| S-18 | Gas Probe | Detection | B | Operational |
| S-21 | Gas Probe | Corrective Action | A | Operational |

| Monitoring Point | Device Type | Program | Monitored Unit | Status |
|---|---|---|---|---|
| S-37 | Gas Probe | Detection | CSP | Planned |

See Glossary for definitions of terms and abbreviations in table.

66. As of the date of this Order, the Facility's existing **surface water** monitoring network consists of the existing and proposed monitoring points listed in **Table 5** and shown in **Attachment E**.

**Table 5—Surface Water Monitoring Network**

| Monitoring Point | Location | Program | Monitored Unit | Status |
|---|---|---|---|---|
| S-1 | Outfall of North Detention Basin adjacent American River | Detection | A, B | Operational |
| S-2 | Discharge of18-inch corrugated pipe adjacent American River | Detection | A | Operational |
| R-1 | Sampling point upstream in American River | Background | American River | Operational |
| R-2 | Sampling point downstream in American River | Detection | WMU-A, WMU-B | Operational |

See Glossary for definitions of terms and abbreviations in table.

67. As of the adoption of this Order, the above-described networks comply with the monitoring requirements of Title 27. (See Title 27, §§ 20415–20435.) Subsequent changes to these networks will be reflected in a Revised MRP issued by the Executive Officer.

68. As of the date of this Order, the Facility's **leachate** monitoring network consists of the existing and proposed monitoring points listed in **Table 6**.

**Table 6—Leachate Monitoring Network**

| Monitoring Point | Program | Monitored Unit | Status |
|---|---|---|---|
| DW-1 | Evaluation | WMU-B | Operational |
| SUMP | Evaluation | WMU-B | Operational |

See Glossary for definitions of terms and abbreviations in table.

69. Leachate samples are collected from the WMU-B leachate sump (SUMP) and from an abandoned dewatering well (DW-1). DW-1 extends into the groundwater below the clay liner of WMU-B and is sampled for comparison to the leachate from the landfill unit. The comparison allows for an evaluation of the integrity of the WMU-B clay liner.

70. The Discharger's 2024 first semiannual SMR reported that leachate from the SUMP includes surface water runoff that enters the sump. Under these conditions, leachate mixed with surface water does not provide a representative sample of the water quality of the leachate recovered from the SUMP. These WDRs, in Section I, require the Discharger to submit a work plan with a schedule of when the Discharger will be able to obtain representative samples of the leachate recovered from WMU-B that has not been diluted with stormwater runoff.

**Water Quality Protection Standard**

71. A Water Quality Protection Standard (WQPS) is the analytical framework through which WMUs are individually monitored for releases and impacts to water quality. (Title 27, § 20390, subd. (a).) Under Title 27, a WQPS is separately established for each WMU in WDRs. (*Ibid*.)

72. In accordance with Title 27, this Order, by virtue of its incorporation of **MRP R5-2025-XXXX** and subsequent revisions thereto, establishes a WQPS for each WMU at the Facility.

**Corrective Action**

73. An initial Solid Waste Assessment Test (SWAT) investigation conducted in 1985 showed the presence of vinyl chloride and elevated concentrations of inorganic constituents/parameters including electrical conductivity and chloride in groundwater at the Facility and south and west of the landfill. Please see **Information Sheet, Findings 12-19,** for more information on the results of the SWAT investigation and subsequent corrective action measures taken by the

Discharger including installing final closure covers over WMU-A and WMU-B, capping/covering the Discharger-owned unclassified fill areas north (North Area) and west (West Area) of 28th Street, including the former compost area and installing a GCCS.

74. On 29 September 2015 the Central Valley Water Board staff issued the 2015 CAO for the Facility, which required the following:

a. By **31 October 2015**, the Discharger shall submit an *Updated Evaluation Monitoring Work Plan* to define the vertical and lateral extent of volatile organic compounds and inorganics constituents affecting groundwater south of the Facility. The Discharger submitted the *Updated Evaluation Monitoring Work Plan* on 31 October 2015 with subsequent updates which was conditionally approved by Central Valley Water Board staff on 19 January 2016.

b. By **30 March 2016** the Discharger shall submit an *Updated Evaluation Monitoring Report of Results and an Updated Engineering Feasibility Study.* The Discharger submitted the *Updated Evaluation Monitoring Report of Results and Updated Engineering Feasibility Study* on 30 March 2016.

c. By **30 October 2016** the Discharger shall submit an *Additional Corrective Action Implementation Report* documenting that the proposed corrective action(s) have been implemented. The Discharger submitted the *Additional Corrective Action Implementation Report* on 30 May 2017. The report contained status on the following information which will be provided in the final report:

   i. Water Level Trend Analysis

   ii. Geophysical Survey

   iii. Well Assessment

   iv. Well Installation

   v. Aquifer Testing

   vi. Dewatering Assessment and Discharge Options Analysis

   The Discharger has since provided the following information which can be found at GeoTracker(ca.gov).

d. The Discharger shall submit semiannual *Corrective Action Progress Reports* containing (a) an evaluation of the effectiveness of the site-wide

corrective action measures, (b) an estimation of the length of time to clean up the release, and (c) a discussion of whether additional corrective actions, or fine-tuning of existing corrective actions, are necessary. The Discharger has been submitting these reports as required as part of its semiannual self-monitoring reports which can be found at https://geotracker.waterboards.ca.gov/.

75. The 2015 CAO also required the Discharger to conduct a *Waste Separation to Groundwater Study* to evaluate whether there is a five (5)-foot separation between waste and groundwater beneath all WMUs, including the unlined West Area and North Area. The depth to waste in the West Area varies from three (3) to 18 feet below existing grades. The bottom depth of waste in WMU A and B is estimated to be approximately 15 feet MSL. The results of the *Waste Separation to Groundwater Study*, obtained through installation of piezometers (PZ-1 through PZ-4), indicated that, due to the Facility's proximity to the American River, at certain times of the year inadequate groundwater separation occurs between the bottom of waste in WMU-A, WMU-B, and the West Area and groundwater.

76. On 17 October 2017, Central Valley Water Board staff issued a letter requiring the Discharger to submit a ROWD, which, in part, required the Discharger to evaluate potential corrective action measures to address inadequate groundwater separation at the Facility.

77. On 5 June 2020, the Discharger submitted its 2020 JTD for the Facility, which, in Exhibit O, evaluated two options for addressing inadequate groundwater separation: (1) installing a cutoff wall along the northern edge of the Facility to prevent the American River at certain times of the year raising groundwater beneath the WMUs, and (2) installing groundwater extraction wells to lower groundwater beneath the Facility. The results of the findings are shown below:

    a. **Cutoff Wall Solution.** Previous levee improvements by the U.S. Army Corps of Engineers (USACE) did not include construction of a cutoff wall in an approximately 5,400 linear feet section at the northern edge of the facility because USACE determined that the landfill would provide flood protection along that length. If a cutoff wall were to be constructed along that length, and assuming an average total depth of 200 feet, a total cutoff wall area would be 1,080,000 square feet. Based upon these values, the Discharger estimates that construction of a cutoff wall in this section would cost between $55 million and $105 million.

    b. **Installation of Groundwater Extraction Wells**. On 9 October 2017, the Discharger met with Central Valley Water Board staff to discuss the results of

recent groundwater investigations. As discussed during this meeting, a preliminary dewatering assessment indicated that, at a minimum, 22 extraction wells, pumping more than 16,000 gallons per minute, would be required during the winter months to meet the requirement of lowering water levels to five (5) feet below the waste within the landfill. These calculations indicated that more than 19,000 acre-feet of water would be extracted annually, which would exceed the City of Sacramento's annual extraction of groundwater for drinking water. Furthermore, the study demonstrated that a significant portion of the groundwater extracted would be directly attributable to depletion of surface water from the adjacent American River. River depletion is one of the six undesirable results of the California Sustainable Groundwater Management Act (SGMA), as outlined in California Code of Regulations, title 23 (Title 23), division 2, chapter 1.5, subchapter 2.

Central Valley Water Board staff considered the Discharger's findings on addressing groundwater separation through either a cutoff wall installed on the north side of the Facility or lowering groundwater elevation below the Facility through groundwater extraction and concur with the infeasibility of these two options due to the Facility's proximity to the American River.

78. The Discharger requested consideration of CLGBs in its 2000 JTD (see Information Sheet, **Finding 19**). In a letter dated 5 June 2003, the Central Valley Water Board staff informed the Discharger that the Board would not consider CLGBs at that time because the Discharger had not justified that groundwater clean-up to background levels was technologically or economically infeasible to achieve. (See Title 27, § 20400.)

79. Central Valley Water Board staff's 2017 ROWD request included an opportunity for the Discharger to present a report in accordance with Title 27 section 20400, subdivisions (c)-(e), proposing CLGBs. The Discharger resubmitted its request for CLGBs in its 2020 JTD (see **Finding 31**).

80. Central Valley Water Board staff has revisited the groundwater separation issue and consideration of CLGBs at the Facility and makes the following corrective action findings regarding the proposed establishment of CLGBs based on information presented in **Attachment H** and **Findings 81 through 90**, below.

81. **Attachment H-1** shows the Discharger's inability to control methane concentrations below five percent (5%) at the Facility's LFG probes S-7 and S-21 installed at the Facility property boundary. The five percent (5%) limit is a CalRecycle requirement to prevent LFG migration from the Facility to protect public health and safety and the environment in accordance with Title 27 section

20921, subdivision (a)(2).

82. **Attachment H-2** confirms the relationship between the seasonal rise of groundwater and corresponding increases in methane production. This relationship is realized in the unsaturated zone beneath the WMU-B at LFG probe S-21("D" or deep). Data from this probe indicates that when groundwater is high and an unsaturated zone does not exist, methane concentrations are low. However, after groundwater contacts waste and then recedes, which creates an unsaturated zone, methane concentrations at S-21D increases above the five percent (5%) limit.

83. In March 2000, the Discharger prepared a Corrective Action Plan (CAP) for the landfill due to an ongoing release of volatile organic compounds (VOCs) to groundwater. The CAP identified three release mechanisms that may have caused the VOC impact, including: (1) migration of landfill leachate directly to groundwater; (2) waste from the unlined units in direct contact with groundwater; and (3) LFG migration and partitioning into groundwater.

84. On 23 July 2015, Central Valley Water Board staff issued a Notice of Violation (NOV) for detections of VOCs and inorganic compounds in groundwater. The NOV was based on a review of the Discharger's Second Semester 2014 Monitoring Report and determined that groundwater has been, and continues to be, affected by both LFG and leachate emanating from the Facility. Since that time, groundwater quality for VOCs has improved due to the Discharger's enhanced and improved GCCS shown in **Attachment I**. However, **Attachment H-3** shows that VOC detections in groundwater monitoring wells continued to occur from 1 January 2024 to 30 June 2024.

85. On 11 March 2024, Central Valley Water Board staff issued a NOV to the Discharger for noncompliance with its operative WDRs due to a release of VOCs and inorganic constituents attributed to a release of LFG from Facility to groundwater. The NOV required the Discharger to conduct and submit, by **30 April 2024,** an *LFG Extraction Well Review* to determine if extraction wells are properly constructed to optimize LFG capture at depth within the waste mass. The Discharger submitted its *LFG Extraction Well Review* on 31 October 2024 for review and approval.

86. **Attachment H-4** shows inorganic iso-concentration where groundwater sampling indicates inorganic parameters at or above the concentration limits established in the Discharger's WQPS. Concentrations of inorganic parameters at or beyond the point of compliance (POC) indicates a release of waste from the Facility. **Attachment H-5** shows the inorganic parameters from 1 January 2019 to 30 June 2024, where the minimum reported concentration for that period exceeded

the concentration limit for that parameter. All reported monitoring results for that period showed exceedances of the concentration limit for that parameter at that location.

87. From 1 January 2019 to 30 June 2024, results from groundwater monitoring wells C-14 and D-17 showed consistent exceedance of the Upper Range of the secondary maximum contaminant level (MCL) for electrical conductivity (EC) (i.e., specific conductance), and results from well C-12 showed consistent exceedance of the Upper Range of the secondary MCL for total dissolved solids (TDS) (see Cal. Code Regs. tit. 22, § 64449). The Basin Plan specifies that ground waters designated for MUN beneficial use shall not contain concentrations of chemical constituents in excess of the MCLs specified in California Code of Regulations, title 22, including those listed under section 64449-B of that title. Section 64449, subdivision (d)(2), states that constituent concentrations ranging to the Upper Range are acceptable only "if it is neither reasonable nor feasible to provide more suitable waters." The Discharger has not demonstrated that it is neither reasonable nor feasible to maintain EC or TDS within the Upper Ranges for those constituents, therefore it is required to maintain concentrations of these constituents in receiving groundwater within the Recommended Ranges for EC (900 µS/cm) and TDS (500 mg/L). The Basin Plan also specifies that ground waters shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The secondary MCLs described above reflect taste and odor thresholds related to EC and TDS; exceeding these thresholds without meeting the criteria described in section 64449, subdivision (d), constitutes a violation of the Basin Plan's narrative taste and odor WQO. The chronic exceedances of the secondary MCLs for EC and TDS at wells C-14, D-17, and C-12 indicate that releases from the Facility have adversely affected the beneficial uses of underlying groundwater (i.e., use as a source of municipal and domestic drinking water supply).

88. These WDRs, in Section I, require the Discharger to submit a *Corrective Action Work Plan with Time Schedule* for correcting impacts to groundwater from the release of inorganic parameters and restoring the beneficial uses of that water.

89. Title 27 section 20400, subdivision (e), states:

> In no event shall a CLGB for a constituent of concern exceed the lowest concentration that the discharger demonstrates and the [Central Valley Water Board] finds is technologically and economically achievable. No provision of this section shall be taken to allow a CLGB for a constituent of concern to exceed the maximum concentration that would be allowed under other applicable statutes or regulations [e.g., Maximum

> Concentration Limits established under the federal Safe Drinking Water Act (P.L. 93-523, codified as Subchapter XII of the Public Health Service Act at 42 USC 300f, et. seq.; regulations establishing MCL's are located in 40 CFR Part 141, Subpart B), etc.].

Since concentration levels of electrical conductivity (specific conductance) exceeds the secondary MCL for a drinking water at groundwater monitoring wells C-14 and D-17 and concentration levels for total dissolved solids exceeds the secondary MCL for a drinking water at groundwater monitoring wells C-12 the Discharger's request for CLGBs in its 2020 JTD cannot be granted at the Facility at this time (See **Findings 86 and 87**).

90. As described above, **Attachments H-4** and **H-5** indicate a release of inorganic parameters from the Facility and, therefore, this Order requires submission of a *Corrective Action Work Plan with Time Schedule* for addressing that release. In addition to that requirement, this Order also requires investigation and reporting concerning potential releases of other inorganics because, at this time, there is insufficient data to determine whether such a release(s) is occurring. In particular, waste characterization of deposited waste at the CSP indicates high levels of lead in the waste. The soluble threshold limit concentration (STLC) lead concentrations in waste at CSP ranged from 6.1 to 67 mg/l, which exceeds the STLC threshold of 5.0 mg/l, indicating that most of the waste and a portion of the overburden fill, if removed from CSP, would qualify as California hazardous waste. Furthermore, during the drilling and installation process of new LFG extraction wells E-146 and D-13, approximately 15 tons of soil waste was removed from 28th Street Landfill and Dellar Landfill between 30-31 July 2024. Lab analysis of the soil waste also revealed a high concentration of lead at 170 mg/L in the soil removed to construct E-146 when testing the soil waste using the Toxicity Characteristic Leaching Procedure (TCLP). Dissolved inorganic metals at the Facility are only monitored every five years, in accordance with the Discharger's existing MRP. Therefore, these WDRs, in Section I, require the Discharger to submit an *Accelerated Inorganic Metals Monitoring Plan* for review and approval. This plan must gather enough groundwater monitoring data from groundwater monitoring wells along the southern and western edge of the Facility to capture seasonal variation in groundwater elevation and provide enough groundwater quality data to determine if inorganic metals are also being released from the Facility.

## Unit Closures

91. On 31 May 2024, the Discharger submitted an updated Closure and Post-Closure Maintenance Plan (2024 CPMP) for the existing closed landfill Units shown in **Table 1**. On 24 September 2024 the Discharger also provided a cost

estimate to place a final closure cover over the Cannon and Scollan Properties that will be closed on the date specified in in **Table 7**.

**Table 7—Unit Closure Schedule**

| Unit Module | Estimated Closure Date |
|---|---|
| Cannon and Scollan Properties | 2025 |

92. Per discussion with Central Valley Water Board staff, the Discharger proposes closure of the Cannon and Scollan Properties with an engineered alternative final cover, as specified in **Attachment J**. Attachment J also describes the final closure covers installed over the WMUs listed in **Table 1**.

93. The Discharger has further demonstrated that the proposed engineered alternatives described in **Attachment J** are consistent with the performance goals of the prescriptive standard, as described above, and will afford at least equivalent water quality protections.

94. The final cover slopes specified in **Attachment J** are within Title 27 limits (i.e., 1¾ horizontal feet for every 1 foot of vertical gain) and supported by a static and dynamic slope stability analysis demonstrating that side slopes will remain stable, both under stable and dynamic conditions, throughout the life of the unit. (See Title 27, § 21750, subd. (f)(5).) The final cover will include a 15-foot-wide bench at minimum for every 50 feet of vertical gain. (See Title 27, § 21090, subd. (a).)

95. The Discharger's proposed final covers, together with any modifications set forth in **Attachment J**, are hereby approved for closure of the WMU identified in **Finding 91 and Table 7**.

**Post-Closure Maintenance & Financial Assurances**

96. The Discharger's 2024 CPMP is the operative document providing for post-closure maintenance of WMU-A, WMU-B, the West Area, and the North Area for the entire post-closure maintenance period of at least 30 years, and until it is demonstrated that the Facility no longer poses a threat to the public health and safety and the environment. (See Title 27, §§ 20950, subd. (a)(1), 21180, subd. (a).)

97. The 2024 CPMP includes cost estimates for closure (Title 27, §§ 21820, 22206), post-closure maintenance (§§ 22210–22212), and foreseeable corrective action for releases (§§ 22220–22222). After submittal of the 2024 CPMP, the Discharger provided cost estimates for closure, post-closure, and corrective

action costs associated with the CSP. These estimates, calculated in accordance with Title 27, are specified in **Table 8.**

**Table 8—Current Cost Estimates (Financial Assurances)**

| Requirement | Estimated Cost |
|---|---|
| Closure of CSP | $ 2,200,000 |
| Post-Closure Maintenance (30 years) | $ 8,687,190 |
| Corrective Action (for water related release) | $ 919,278 |

98. This Order requires the Discharger to maintain financial assurances with CalRecycle in at least the Estimated Cost amounts specified in **Table 8**, in accordance with Title 27.

99. As of the date of this Order, the Discharger, as a public agency, has a dedicated source of revenue that includes the closure fund, post-closure maintenance fund, and corrective action fund, with total fund balances dedicated to the Facility specified in **Table 9.**

**Table 9—Current Fund Balances (Financial Assurances)**

| Requirement | Current Balance |
|---|---|
| Closure of CSP | $ None |
| Post-Closure Maintenance (30 years) | $ 8,387,190 |
| Corrective Action (for non-water related damages) | $ 561,456 |

100. The Discharger's 2024 CPMP did not incorporate costs associated with closure, post-closure maintenance, and corrective action for the CSP. These WDRs, in Section I, require the Discharger to submit an amended CPMP that incorporates the CSP. This must include estimated costs for closure, post-closure maintenance, and foreseeable corrective action costs. These WDRs, in Section I, also require the Discharger to provide evidence of financial assurances for costs associated with the CSP closure, post-closure maintenance, and foreseeable corrective action costs.

**California Environmental Quality Act**

101. The issuance of this Order, which prescribes requirements and monitoring of waste discharges at an **existing, closed facility**, with no expansion of its existing use, is exempt from the procedural requirements of the California

Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq., pursuant to California Code of Regulations, title 14, section 15301.

102. To the extent that the Discharger intends to construct a final closure cover over the CSP, which also includes a means of conveying non-contact stormwater to an existing stormwater basin, the County of Sacramento filed a Notice of Exemption on 23 April 2018 stating that this activity constitutes a **minor alteration to land** exempt from CEQA review pursuant to California Code of Regulations, title 14, section 15304.

**Other Regulatory Matters**

103. This Order is issued in part pursuant to Water Code section 13263, subdivision (a), which provides as follows:

> The regional board, after any necessary hearing, shall prescribe requirements as to the nature of any proposed discharge, existing discharge, or material change in an existing discharge…, with relation to the conditions existing in the disposal area … into which, the discharge is made or proposed. The requirements shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of [Water Code] Section 13241.

104. This Order implements the Central Valley Water Board's Basin Plan, which designates beneficial uses for surface water and groundwater and establishes water quality objectives (WQOs) necessary to preserve such beneficial uses.[4] (Wat. Code, § 13241 et seq.)

105. The State Water Board's *Statement of Policy with Respect to Maintaining High Quality Waters in California*, Resolution 68-16 (*Antidegradation Policy*) prohibits the Central Valley Water Board from authorizing degradation of "high quality waters" unless it is shown that such degradation: (1) will be consistent with the maximum benefit to the people of California; (2) will not unreasonably affect beneficial uses, or otherwise result in water quality less than as prescribed in

[4] Designated beneficial uses surface water and groundwater are discussed in **Finding 51** and **Finding 57**, respectively.

applicable policies; and (3) is minimized through the discharger's best practicable treatment or control.

106. Consistent with Title 27, this Order requires the Discharger to maintain the Facility to contain waste within WMUs, thereby preventing degradation of water quality. To the extent that there are releases from Facility WMUs, the Discharger will be required to address such releases through a Corrective Action Program. (See Title 27, §§ 20385, 20415, 20430.) Because this Order does not authorize any degradation in water quality, it complies with the *Antidegradation Policy*.

107. For the purposes of California Code of Regulations, title 23 (Title 23), section 2200, the Facility has a threat-complexity rating of **2**-**B**, where:

a. Threat Category "2" reflects waste discharges that can impair receiving water beneficial uses, cause short-term water quality objective violations, cause secondary drinking water standard violations, and cause nuisances; and

b. Complexity Category "B" reflects any discharger not included in Category A, with either (1) physical, chemical or biological treatment systems (except for septic systems with subsurface disposal), or (2) any Class II or Class III WMUs.

**Reporting Requirements**

108. This Order is also issued in part pursuant to Water Code section 13267, subdivision (b)(1), which provides that:

> [T]he regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region … shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

109. The technical reports required under this Order, as well as those required under the separately issued MRP, are necessary to ensure compliance with prescribed WDRs and the provisions of Title 27, Subtitle D (40 C.F.R. § 258) and State

Water Board Resolution 93-62. Additionally, the burdens associated with such reports are reasonable relative to the need for their submission.

110. Failure to comply with the reporting requirements under this Order and the MRP may result in enforcement action pursuant to Water Code section 13268.

**Procedural Matters**

111. All local agencies with regulatory jurisdiction over land-use, solid waste disposal, air pollution and public health protection have approved the use of the Facility's site for the discharge of waste to land as provided for herein.

112. The Discharger, interested agencies and interested persons were notified of the Central Valley Water Board's intent to prescribe the WDRs in this Order, and provided an opportunity to submit their written views and recommendations at a public hearing. (Wat. Code, § 13167.5; Title 27, § 21730.)

113. At a public meeting, the Central Valley Water Board heard and considered all comments pertaining to the discharges regulated under this Order.

114. The Central Valley Water Board will review and revise the WDRs in this Order as necessary.

# REQUIREMENTS

**IT IS HEREBY ORDERED**, pursuant to Water Code sections 13263 and 13267, that the Discharger and their agents, employees, and successors shall comply with the following:

## A. Discharge Prohibitions

1. The Discharger shall not discharge any waste including landfill gas condensate and leachate collected to any closed waste management unit.

2. Discharges from the Facility shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State — in either the liquid or the gaseous phase — and cause a condition of nuisance, degradation, contamination, or pollution.

3. The Discharger shall not cause the release of pollutants or waste constituents in a manner which could cause a condition of nuisance, degradation, contamination, or pollution of groundwater to occur, as indicated by the most appropriate statistical or non-statistical data analysis method and retest method listed in this Order, the MRP, or the Standard Provisions and Reporting Requirements (SPRRs).

4. The ponding of any liquid on any landfill module is prohibited.

5. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

6. The discharge of groundwater or wastewater to surface water or any surface water drainage courses is prohibited without an NPDES permit authorizing the discharge.

7. The discharge of waste within 100 feet of surface waters is prohibited.

## B. Discharge Specifications

The discharge of landfill gas condensate or leachate shall only be disposed of at a facility authorized to take such waste.

## C. Facility Specifications

1. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order.

2. The Discharger shall immediately notify the Central Valley Water Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

3. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with these WDRs.

4. All wells within 500 feet of a waste management unit which are no longer used for post closure monitoring or corrective action shall be sealed or abandoned to the satisfaction of the Sacramento County Department of Environmental Health. A record of the sealing and/or abandonment of such wells shall be sent to the Regional Board and to the State Department of Water Resources.

5. Precipitation and drainage control systems shall be designed, constructed, and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour precipitation conditions.

6. Closed landfill units shall be maintained to promote runoff and to prevent ponding.

7. Surface drainage from on-site and off-site tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.

8. Surface drainage within the waste management facility shall either be contained on-site or be discharged in accordance with applicable storm water regulations.

9. The Discharger shall maintain a Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements in accordance State Water Board's operative *Statewide General Permit for Stormwater Discharges Associated with Industrial Activities* (Industrial General Permit), Order No. 2014-0057-DWQ (National Pollutant Discharges Elimination System (NPDES) No. CAS000001), or retain all storm water on-site.

10. The unclassified fill areas north and west of 28th Street ceased accepting wastes prior to the revision of Chapter 15 in November 1984. Therefore, these areas were not required to close with prescriptive cover materials. However, this does not relieve the Discharger from any more stringent

requirements prescribed by CalRecycle, nor from the responsibility to take corrective action to prevent, abate, and/or remediate groundwater and/or surface water contamination related to this landfill unit in accordance with Title 27 section 20080, subdivision (g).

11. Methane and other landfill gases shall be adequately vented, removed from the landfill units, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

12. Condensate from the landfill gas collection system shall be discharged to an approved off-site facility capable of receiving these wastes or equivalent treatment system. Any other treatment alternative proposed shall be submitted to the Central Valley Water Board for approval.

13. The depth of fluid in any LCRS sump shall be kept at or below six (6) inches, or the minimum needed to ensure efficient pump operation.

14. Vegetation shall be planted and maintained over each closed landfill unit. Vegetation shall be selected to require a minimum of irrigation and maintenance and shall have a rooting depth not in excess of the vegetative layer thickness.

15. Closed landfill units shall be graded to at least a three percent (3%) slope and maintained to prevent ponding.

16. Areas with slopes greater than ten percent (10%), surface drainage courses, and areas subject to erosion by wind or water shall be designed, constructed, and maintained to prevent such erosion.

17. Repair of existing closure construction must, at a minimum, comply with the existing approved Final Closure Plan and construction quality assurance plans and specifications.

18. The Discharger shall comply with all Standard Facility Specifications (SPRRs, § E) which are incorporated herein.

## D. Unit Construction Specifications

Except as otherwise expressly directed below, the Discharger shall comply with all Standard Construction Specifications and Standard Storm Water Provisions (SPRRs, §§ D, L), as well as the following.

1. The Discharger shall not commence any construction involving the repair of a waste containment system (e.g., base/side slope liner system or final

closure cover) until Central Valley Water Board staff has approved in writing all necessary construction plans, specifications and construction quality assurance plans related to the repair of the liner and/or final closure cover system(s).

## E. Closure & Post-Closure Maintenance Specifications

Except as otherwise directed below, the Discharger shall comply with all Standard Closure and Post-Closure Specifications (SPRRs, § G) and closure-related Standard Construction Specifications (SPRRs, § F), as well as the following, with respect to closure of landfills at the Facility.

1. The Discharger shall submit a Final or Partial Final Closure and Post Closure Maintenance Plan (CPMP), in accordance with section G of the SPRRs, at least two years prior to the proposed closure of any portion of any landfill.

2. The Discharger shall close and/or maintain closure of landfills listed in **Table 1** with the final cover components proposed in the operative Closure and Post-Closure Maintenance Plan (CPMP), as approved per **Finding 95** and **Attachment J**.

3. The Discharger shall submit, in accordance with Title 27 section 21760, subdivision (a), a Design Report, including construction plans, construction specifications, and a construction quality assurance (CQA) plan, Monitoring System Plans and Rationale, and Inspection Procedures. If any final closure cover will have any slopes steeper than a horizontal to vertical ratio of three to one (3:1) or a geosynthetic component (as described in Title 27, § 21090, subd. (a)(2)), the Design Report shall include the appropriate slope stability analysis (see Title 27, § 21750, subd. (f)(5).)

4. The Discharger shall submit, in accordance with Title 27section 21760, subdivision (b), Operation Plans for construction of the final closure cover and related stormwater conveyance structures and monitoring points and LFG extraction wells and controls for Cannon and Scollan Properties for review and approval by Central Valley Water Board staff at least 120 days prior to construction.

5. The Discharger shall obtain revised WDRs prior to closure of any landfill with a final cover other than the one(s) approved herein.

6. During or after final cover installation, the Discharger may perform minor modifications to problematic areas of the final cover, provided that: (a) the barrier layer of the final cover (e.g., geomembrane, GCL and/or

compacted clay layer) remains intact; and (b) the Central Valley Water Board approves of such modifications.

7. If the final cover incorporates a geomembrane barrier, all edges of the final cover shall be sealed by connecting to the liner.

8. The Discharger shall apply a volume of seed, binder and nutrients to the vegetative/erosion-resistant layer sufficient to establish the vegetation proposed in the final closure plan. The Discharger shall also install any necessary erosion and sedimentation controls to protect vegetation while it is being established.

9. Critical interfaces of the final cover shall be laboratory-tested to ensure minimum design shear strength. The results of such testing shall be reported to the Central Valley Water Board as part of the Construction Quality Assurance (CQA) Report.

## F. Financial Assurances

Except as otherwise directed below, the Discharger shall comply with all Standard Financial Assurance Provisions (SPRRs, § H), as well as the following.

1. The Discharger shall maintain with CalRecycle assurances of financial responsibility for the amounts specified for each category in **Table 8**, adjusted annually for inflation.

2. A report regarding financial assurances, or a copy of the financial assurances report submitted to CalRecycle, shall be submitted to the Central Valley Water Board annually, no later than **1 June**.

3. If CalRecycle determines that the submitted financial assurances for the Facility are inadequate, the Discharger shall, within 90 days of such determination:

    a. Obtain a new financial assurance mechanism for the amount specified by CalRecycle; and

    b. Submit a report documenting such financial assurances to CalRecycle and the Central Valley Water Board.

4. The operative Preliminary CPMP shall include all components required per Title 27, section 21769, subdivision (c), and include a lump sum cost estimate for:

    a. Completion of all actions required for closure of each WMU;

b. Preparation of detailed design specifications;

c. Development of a Final CPMP; and

d. Undertaking at least 30 years of post-closure maintenance.

5. Whenever changed conditions increase the estimated costs of closure and post-closure maintenance, the Discharger shall promptly submit an updated CPMP to the Central Valley Water Board, CalRecycle and the LEA.

## G. Monitoring Requirements

Except as otherwise directed below, the Discharger shall comply with all applicable Standard Monitoring Specifications (SPRRs, § I) and Standard Response to Release Specifications (SPRRs, § J), as well as the following:

1. The Discharger shall comply with all provisions of the separately issued Monitoring and Reporting Program Order R5-2025-XXXX and any subsequent revisions thereto (operative MRP).

2. The Discharger shall implement the Water Quality Protection Standard (WQPS) set forth in the operative MRP (see also Title 27, § 20390); and shall verify the compliance of each WMU with each subsequent monitoring event.

3. For all WMUs, the Discharger shall implement a groundwater, surface water and unsaturated zone detection monitoring program (DMP) in accordance with Title 27, sections 20385, 20415 and 20420.

4. For each WMU subject to corrective action, the Discharger shall implement a corrective action monitoring program (CAMP) in accordance with Title 27, sections 20385, 20415 and 20430, and Section I of the SPRRs.

## H. Reporting Requirements

In addition to those Standard Provisions pertaining to notification and reporting obligations (see, e.g., §§ K.1-2, K.6, K.8-10), the Discharger shall comply with the following provisions.

1. The Discharger shall comply with all MRP provisions pertaining to the submittal and formatting of reports and data.

2. Reports shall be submitted electronically via the State Water Board's GeoTracker Database (https://geotracker.waterboards.ca.gov). After

uploading, the Discharger shall notify Central Valley Water Board staff via email at CentralVallySacramento@WaterBoards.ca.gov. The following information shall be included in the body of the email:

**Attention:** Title 27 Permitting Unit
**Report Title:** [Enter Report Title]
**GeoTracker Upload ID:** [Number]
**Facility:** 28th Street Landfill
**County:** Sacramento County
**CIWQS Place ID:** 202262

3. All technical reports submitted under this Order shall be prepared by, or under the direct supervision of, a California-licensed civil engineer or engineering geologist. For the purposes of this section, a "technical report" is a report incorporating the application of scientific or engineering principles.

## I. Time Schedule

The Discharger shall complete the following tasks in accordance with the specified deadlines:

**Table 10—Time Schedule**

| Item No. | Category | Task | Deadline |
|---|---|---|---|
| 1. | Construction | Submit, in accordance with Section E.3 Closure & Post-Closure Maintenance Specifications, the necessary documents required for construction of the final closure cover over the Cannon and Scollan Properties for review and approval by Central Valley Water Board staff. | At least 120 days prior to construction |

| Item No. | Category | Task | Deadline |
|---|---|---|---|
| 2. | Construction | Submit construction and design plan(s) of proposed repair of any final closure cover system for review and approval in accordance with Section D of this Order, and Section F of the SPRRs. | Prior to Proposed Repair of Base/Side slope Liner or Final Closure Cover |
| 3. | Construction | Submit construction report(s) for review and approval upon completion demonstrating construction was in accordance with approved construction plans and Section F.27 of the SPRRs. | Within 30 Days of Completion of Repair |
| 4. | Final Closure | Submit final or partial final closure and postclosure maintenance plan (PCMP), design plans, and CQA plan for review and approval, in accordance with Section E of this Order and Section G of the SPRRs. | 2 Years Prior to Closure |
| 5. | CPMP | Submit an amended Closure and Postclosure Maintenance Plan which incorporates the Cannon and Scollan Properties with estimated costs for postclosure maintenance and foreseeable corrective action costs. | 1 July 2025 |
| 6 | Financial Assurances | The Discharger shall provide evidence of financial assurances that funds costs associated with Item 5 above. | 1 July 2025 |
| 7. | Water Quality Sampling | Submit a work plan with a schedule for review and approval of when the Discharger will be able to obtain representative samples of the leachate recovered from the WMU-B SUMP monitoring point that has not been diluted with stormwater runoff. | 1 July 2025 |

| Item No. | Category | Task | Deadline |
|---|---|---|---|
| 8. | Leachate removal System | Discharger shall submit a work plan with a schedule of when the Discharger will repair the WMU-B LCRS pump control panel and associated pump(s) and appurtenances such that any leachate that accumulates in the WMU-B LCRS may be removed and disposed of accordingly. | 1 July 2025 |
| 9. | Corrective Action | The Discharger shall submit a *Corrective Action Work Plan with Time Schedule* for review and approval in accordance with **Finding 88** that addresses impacts to groundwater from a release of inorganic parameters. | 1 October 2025 |
| 10. | Corrective Action | The Discharger to submit an *Accelerated Inorganic Metals Monitoring Plan* for review and approval in accordance with **Finding 90** that determines if inorganic metals are also being released from the Facility. | 1 July 2025 |

## J. Other Provisions

1. The Discharger shall maintain at the Facility copies of this Order (including all attachments), the operative Monitoring & Reporting Program (i.e., MRP R5-2025-XXXX and any revisions thereto), and the SPRRs. These materials shall be made available to all operating personnel, who shall be familiar with the contents of such materials.

2. The Discharger shall comply with all applicable provisions of Title 27 (including those provisions not specifically referenced herein).

## LIST OF ATTACHMENTS

Attachment A—SITE LOCATION map

Attachment B—WASTE MANAGEMENT UNIT LOCATIONS/ACREAGE
Attachment C—HISTORIC LOCATION OF THE AMERICAN RIVER IN 1893
Attachment D—SENSITIVE RECEPTOR MAP WITHIN 1-MILE RADIUS
Attachment E—STORMWATER MANAGEMENT PLAN
Attachment F—GROUNDWATER, SURFACE WATER, AND LEACHATE MONITORING POINTS
Attachment G—UNSATURATED ZONE MONITORING POINTS
ATTACHMENT H-1—LANDFILL PERIMETER GAS PROBE METHANE CONCENTRATIONS
ATTACHMENT H-2—GROUNDWATER ELEVATION AND METHANE CONCENTRATIONS AT S-21D
ATTACHMENT H-3—NUMBER OF VOC DETECTIONS AT GROUNDWATER MONITORING WELLS
ATTACHMENT H-4—INORGANIC ISO-CONCENTRATION LINES AT CONCENTRATION LIMITS
ATTACHMENT H-5—INORGANIC PARAMETERS ABOVE CONCENTRATION LIMITS
Attachment I—LANDFILL GAS COLLECTION AND CONTROL SYSTEM
Attachment J—LANDFILL WMU CLOSURE SPECIFICATIONS

Standard Provisions and Reporting Requirements for Non-Hazardous Discharges of Waste Regulated under Subtitle D and/or Title 27, December 2015 Edition (SPRRs or Standard Provisions)

Information Sheet

Monitoring and Reporting Program R5-2025-XXXX (separate document)

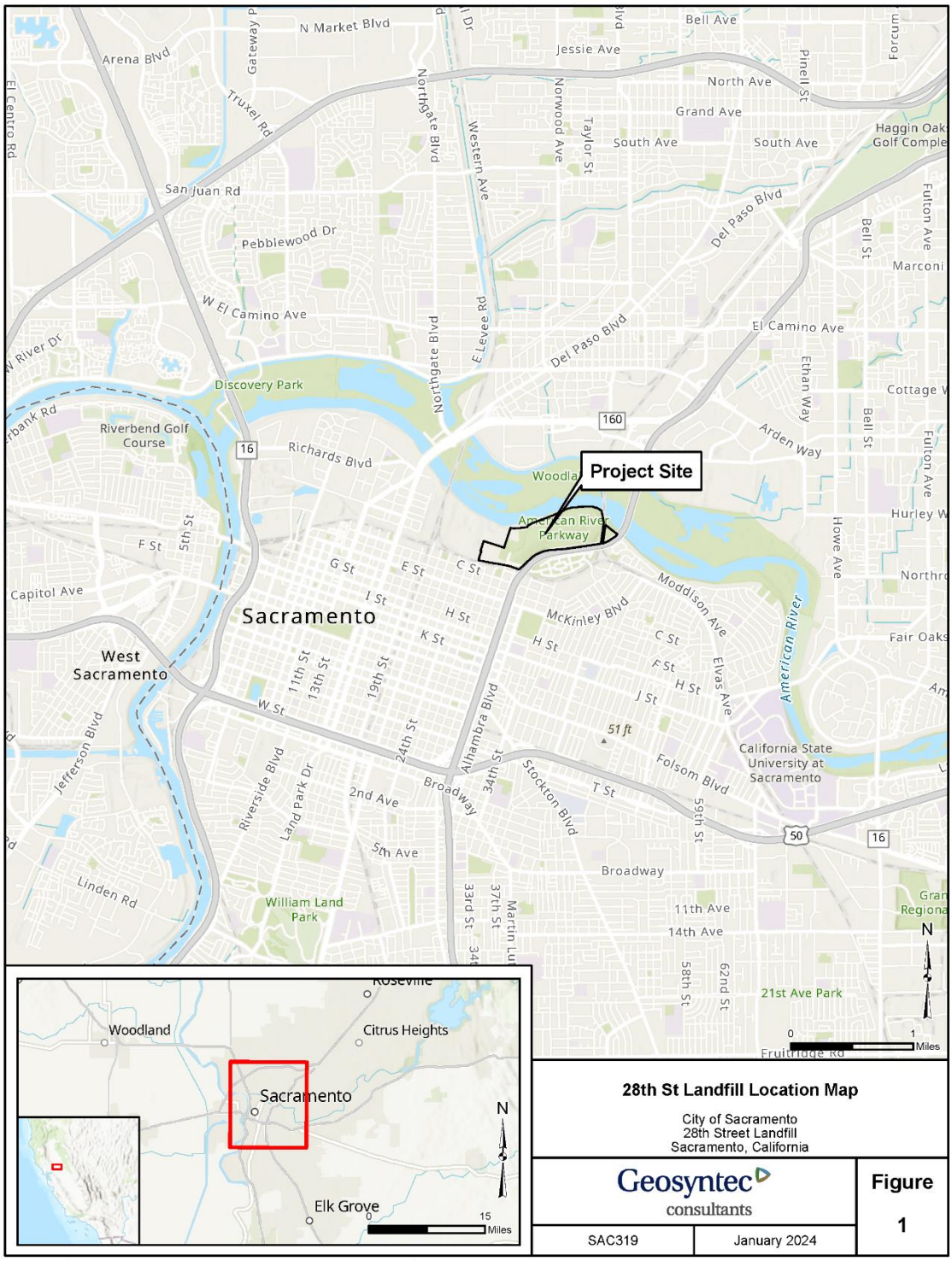
## ENFORCEMENT

If, in the opinion of the Executive Officer, the Dischargers fail to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to $10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

## ADMINISTRATIVE REVIEW

Any person aggrieved by this Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. To be timely, the petition must be received by the State Water Board by 5:00 pm on the 30th day after the date of this Order; if the 30th day falls on a Saturday, Sunday or state holiday, the petition must be received by the State Water Board by 5:00 pm on the next business day. The law and regulations applicable to filing petitions are available on the State Water Board website (http://www.waterboards.ca.gov/public_notices/petitions/water_quality). Copies will also be provided upon request.

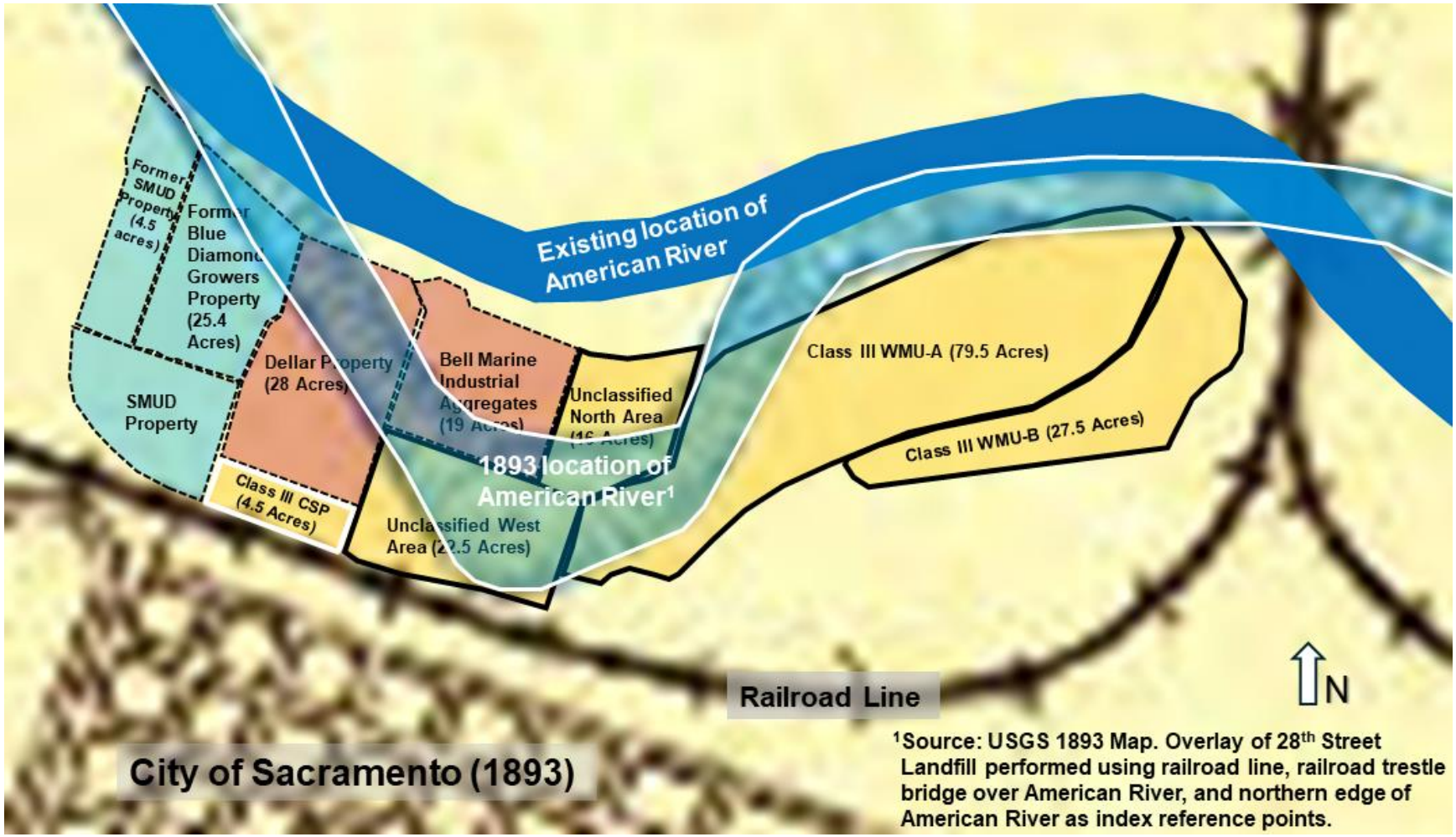
# ATTACHMENT A—SITE LOCATION MAP



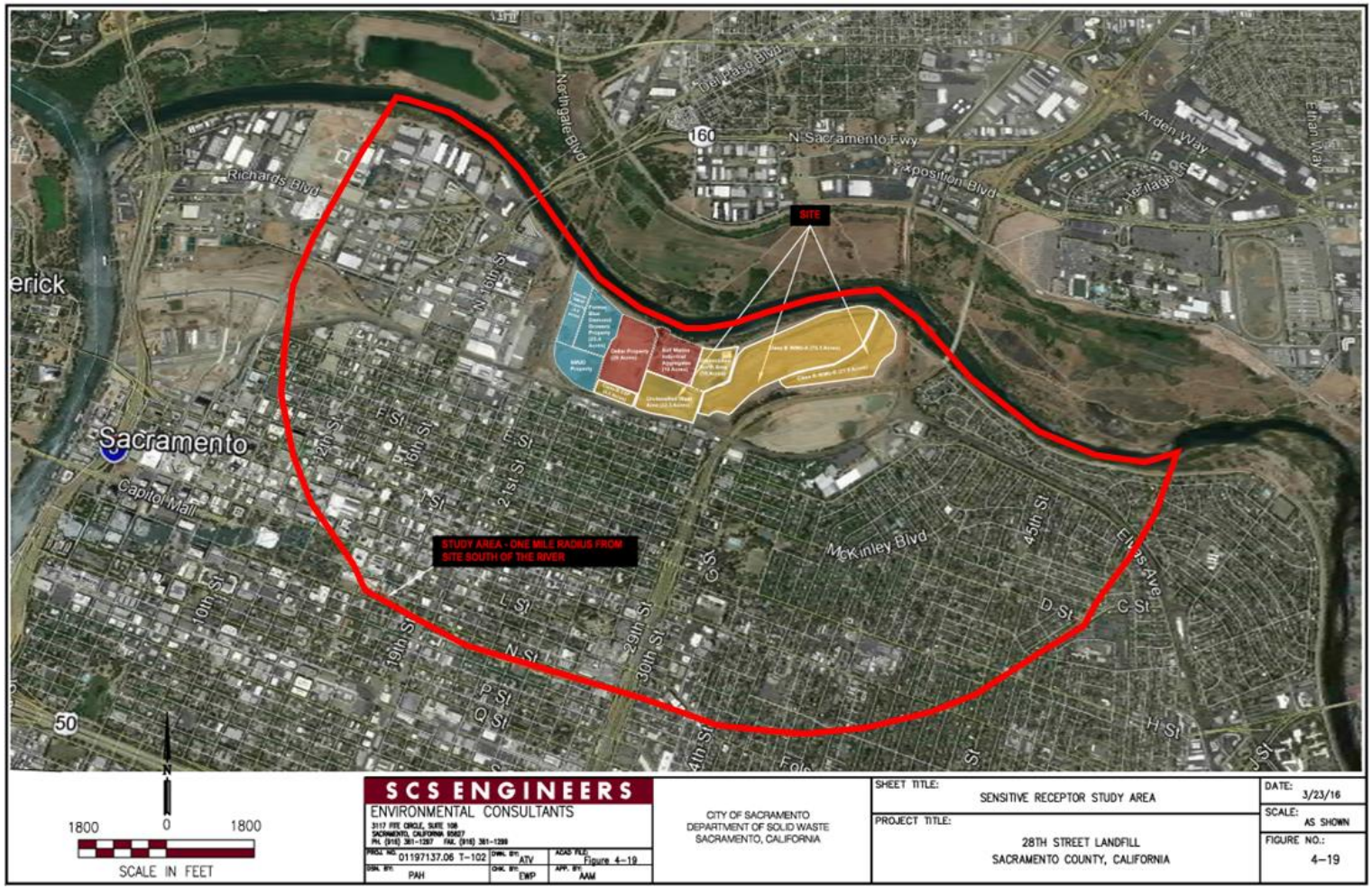
## ATTACHMENT B—WASTE MANAGEMENT UNIT LOCATIONS/ACREAGE


Note: Areas in yellow regulated under these WDRs.

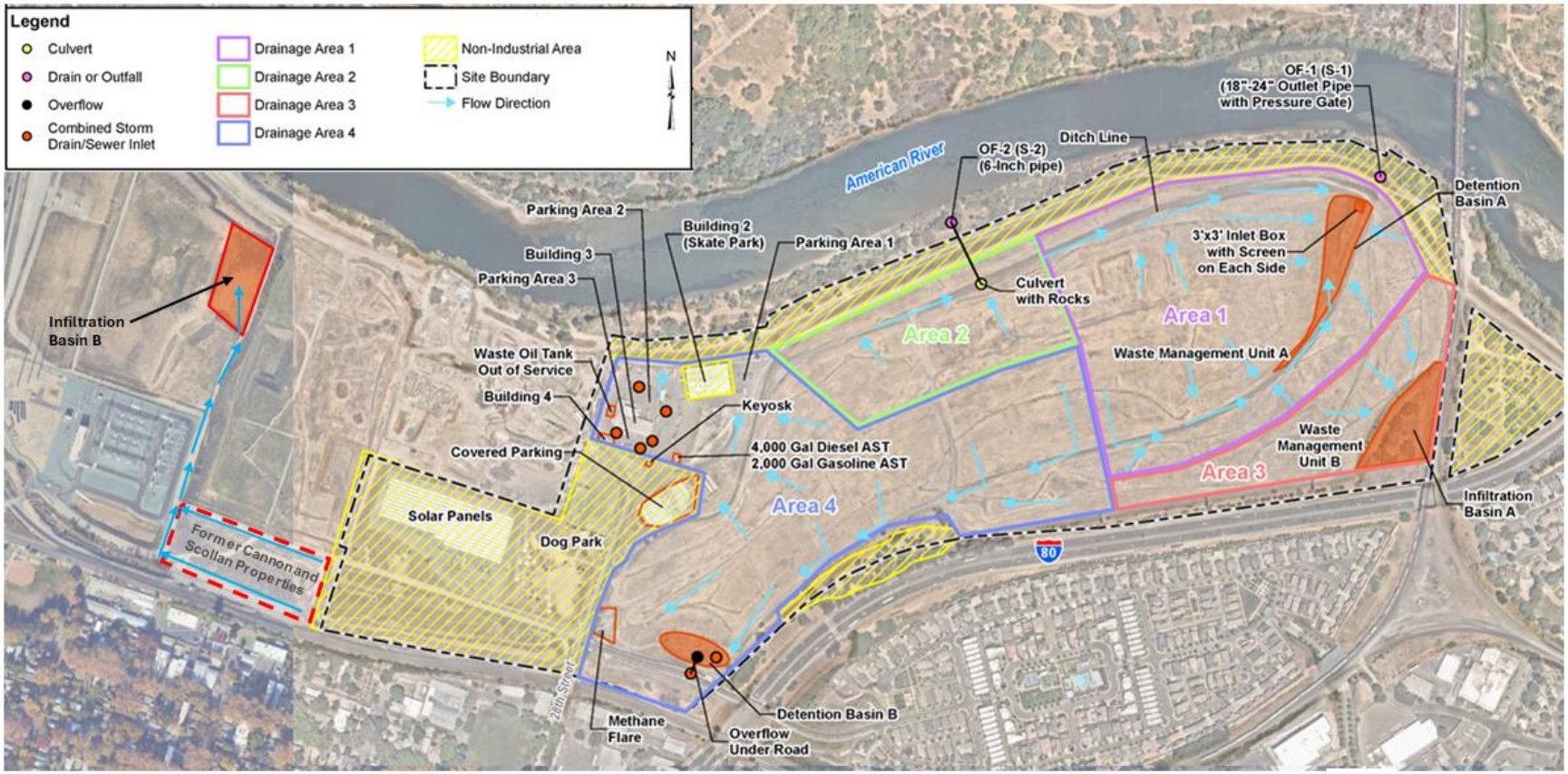
## ATTACHMENT C—HISTORIC LOCATION OF THE AMERICAN RIVER IN 1893



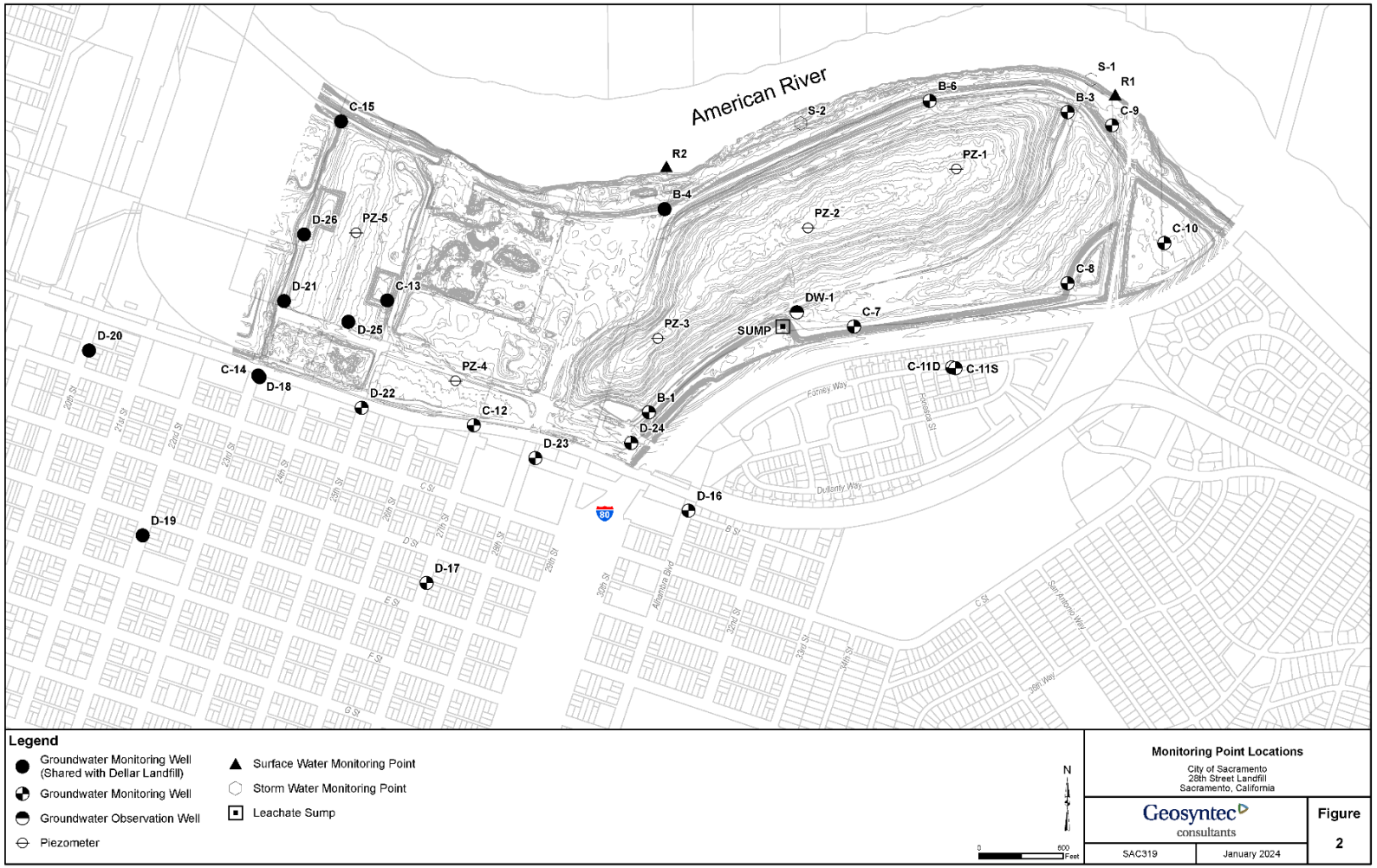
## ATTACHMENT D—SENSITIVE RECEPTOR MAP WITHIN 1-MILE RADIUS



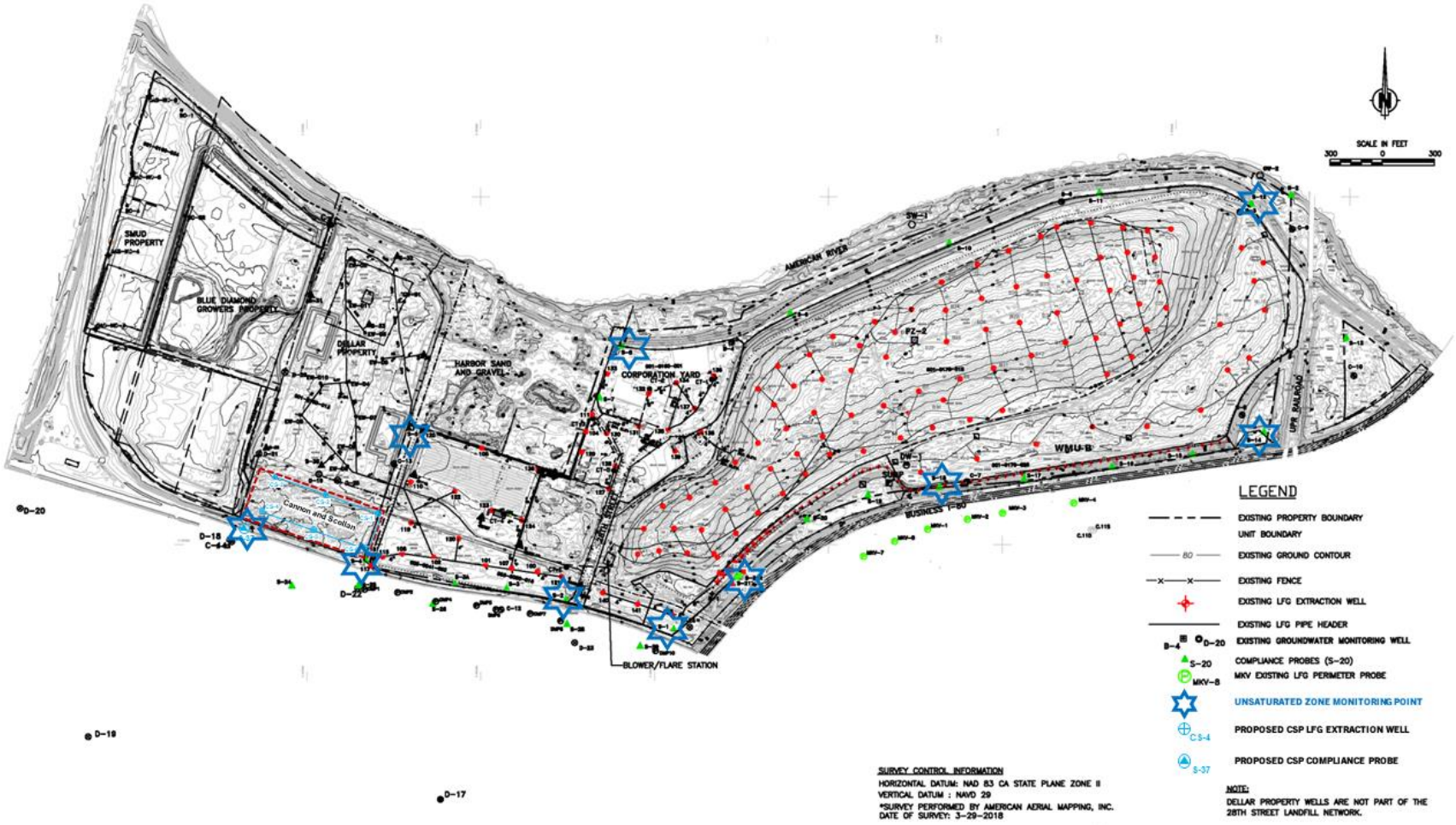
# ATTACHMENT E—STORMWATER MANAGEMENT PLAN



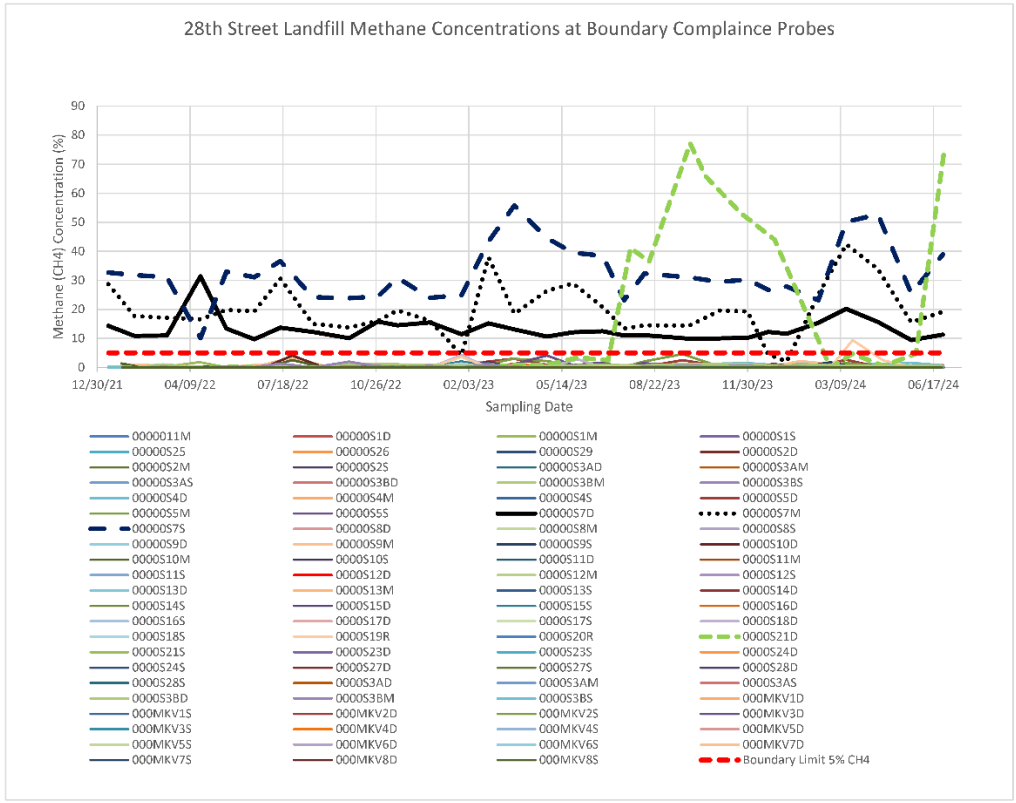
# ATTACHMENT F—GROUNDWATER, SURFACE WATER, AND LEACHATE MONITORING POINTS



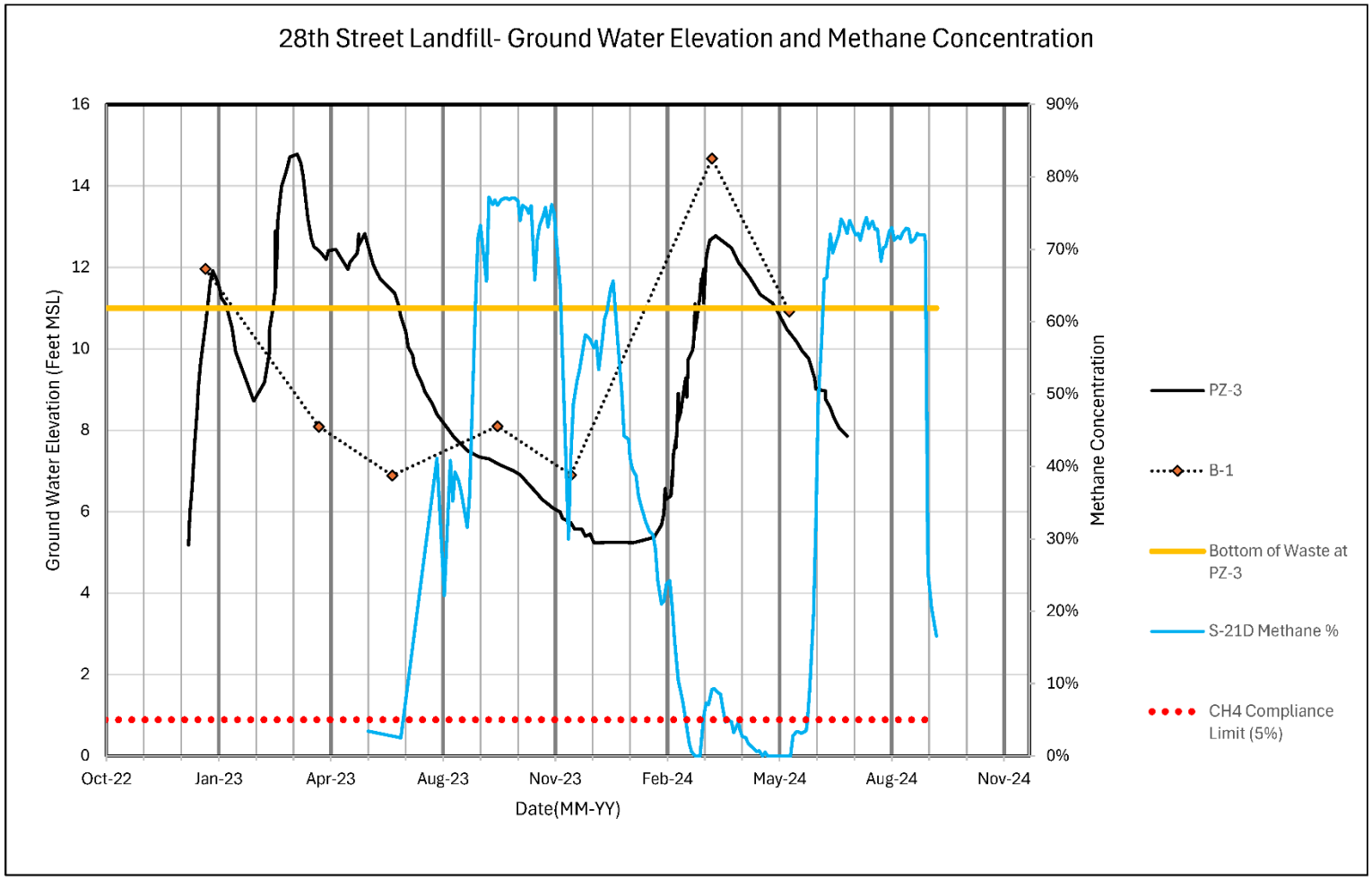
# ATTACHMENT G—UNSATURATED ZONE MONITORING POINTS



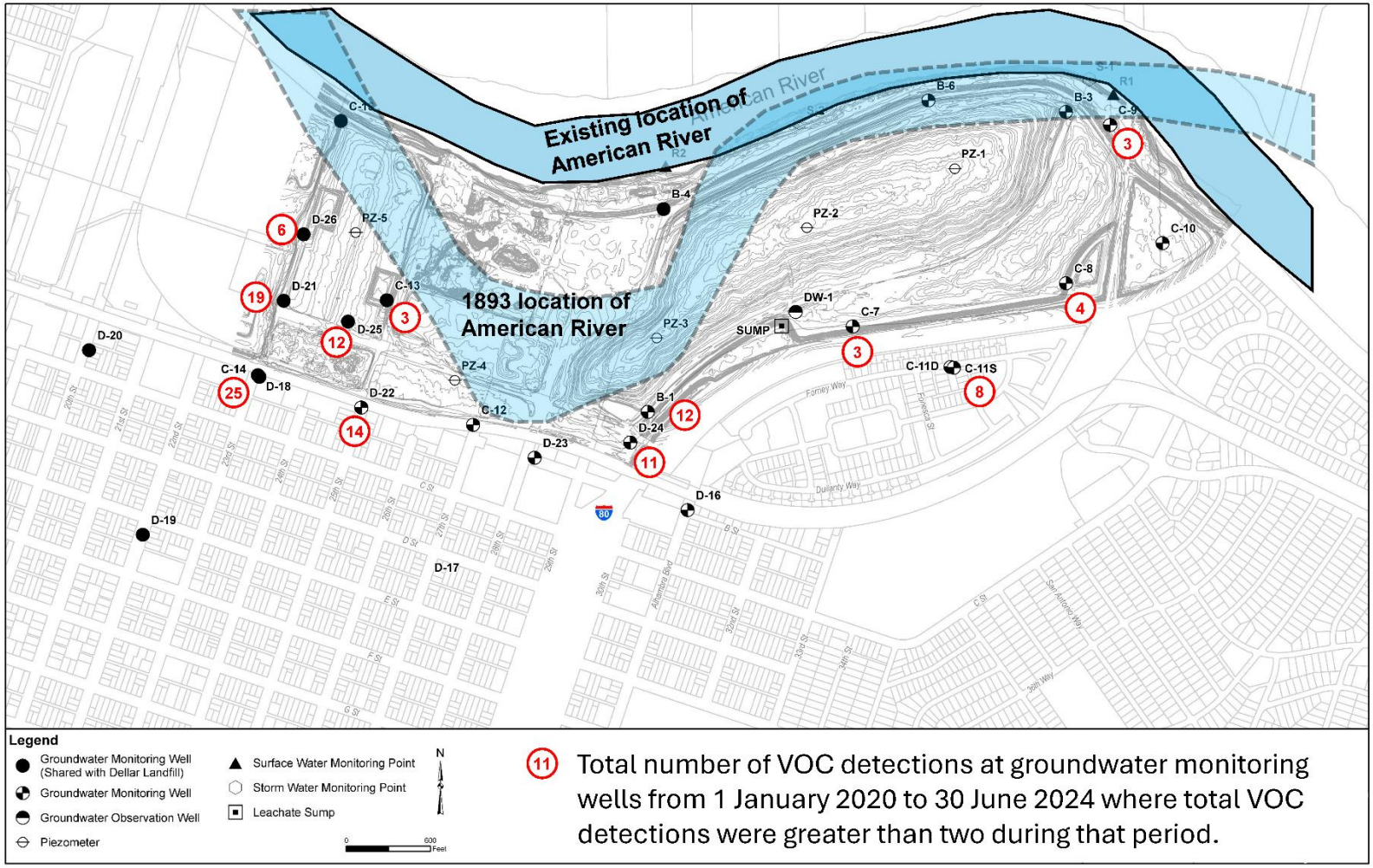
# ATTACHMENT H-1—LANDFILL PERIMETER GAS PROBE METHANE CONCENTRATIONS



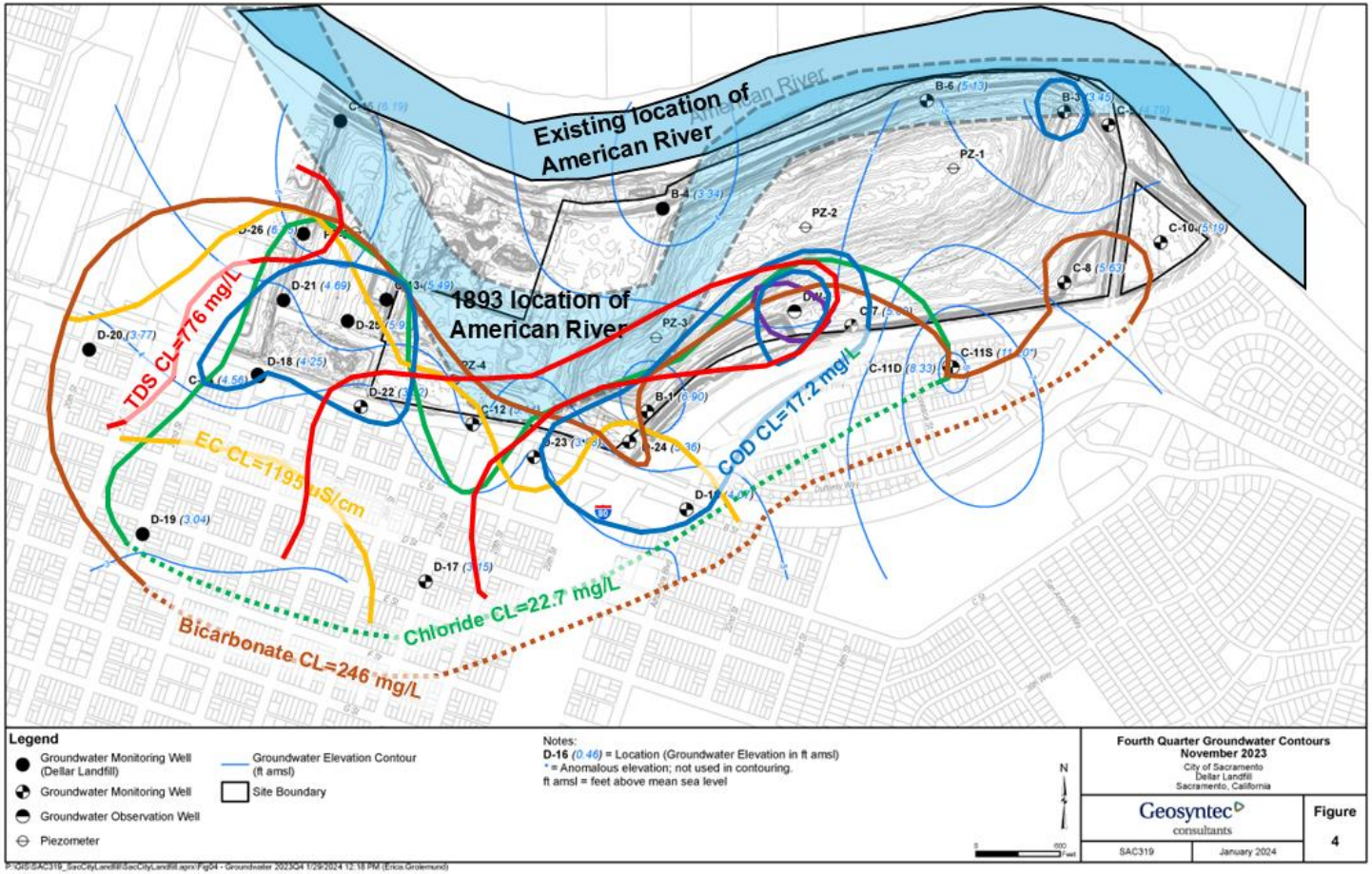
## ATTACHMENT H-2—GROUNDWATER ELEVATION AND METHANE CONCENTRATIONS AT S-21D



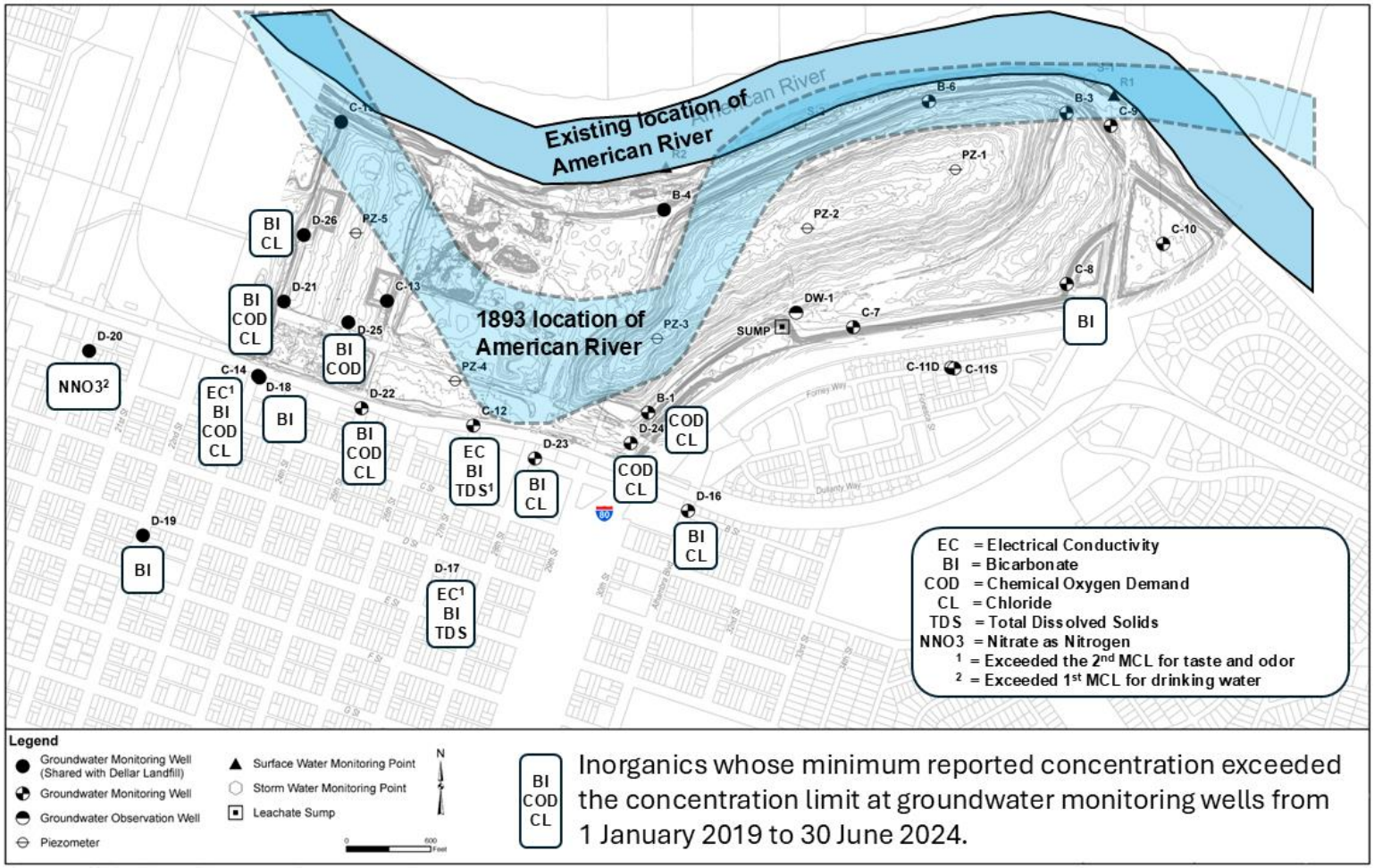
# ATTACHMENT H-3—NUMBER OF VOC DETECTIONS AT GROUNDWATER MONITORING WELLS



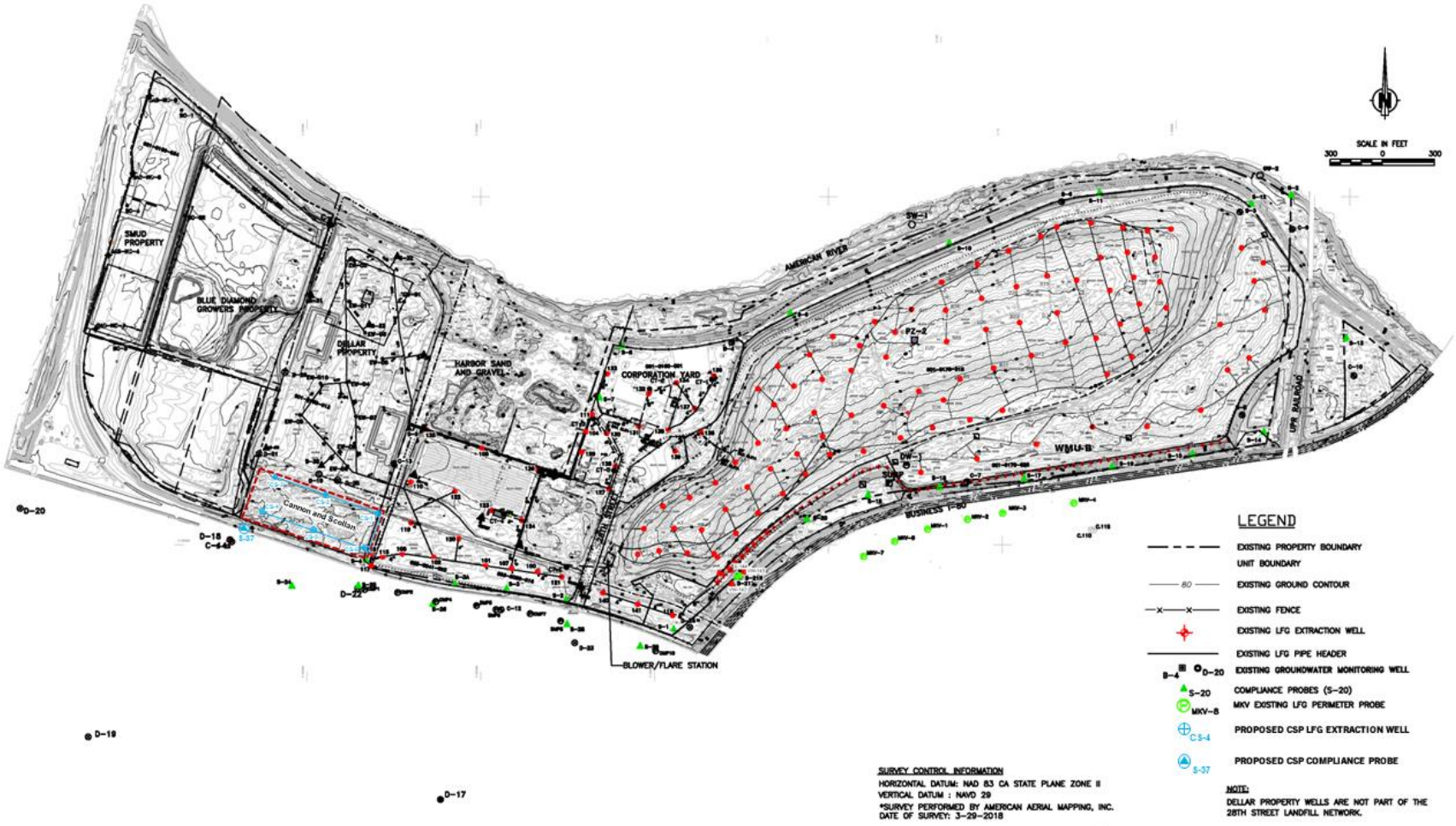
# ATTACHMENT H-4—INORGANIC ISO-CONCENTRATION LINES AT CONCENTRATION LIMITS



# ATTACHMENT H-5—INORGANIC PARAMETERS ABOVE CONCENTRATION LIMITS



# ATTACHMENT I—LANDFILL GAS COLLECTION AND CONTROL SYSTEM



# ATTACHMENT J—LANDFILL WMU CLOSURE SPECIFICATIONS

The Discharger has installed the following final closure covers over the waste management units and is required to maintain such final closure covers in order to comply with Title 27 section 20950(a)(2)(A):

1. **WMU-A and WMU-B** (from bottom to top):
    a. 2-foot foundation layer;
    b. 1-foot low permeability soil ($1x10^{-6}$ cm/sec); and
    c. 1-foot vegetative layer.

For the Unclassified Disposal Areas (filled during the period 1963-1971) •

2. **West Area (W)**: Approximately 12.5-acre, unpaved area west of 28th Street was graded to a minimum 3% slope and covered from top to bottom:
    a. 2-feet soil cover;
    b. 6 inches of asphalt street grindings;
    c. 2-feet of concrete and asphalt rubble; and
    d. 6 inches of soil cover.
3. **West Area (W)** Approximately 10-acres west of 28th Street was covered from top to bottom:
    a. 3 inches of asphalt concrete (to provide an all-weather surface and prevent infiltration of water);
    b. 6 inches of asphalt street grindings;
    c. two-feet of concrete and asphalt rubble; and
    d. one-foot of soil paved with asphalt concrete.
4. **North Area (N)**: Approximately 16 paved acres north of 28th Street was covered from top to bottom:
    a. 3 inches of asphalt concrete (to provide an all-weather surface and prevent infiltration of water);
    b. 6 inches of asphalt street grindings;
    c. two-feet of concrete and asphalt rubble; and
    d. one-foot of soil paved with asphalt concrete.

5. **Cannon and Scollan Properties** (on top deck and side slopes from bottom to top as shown below) as an engineered alternative (see **Findings 92 and 93**):

    a. 2-foot foundation layer;

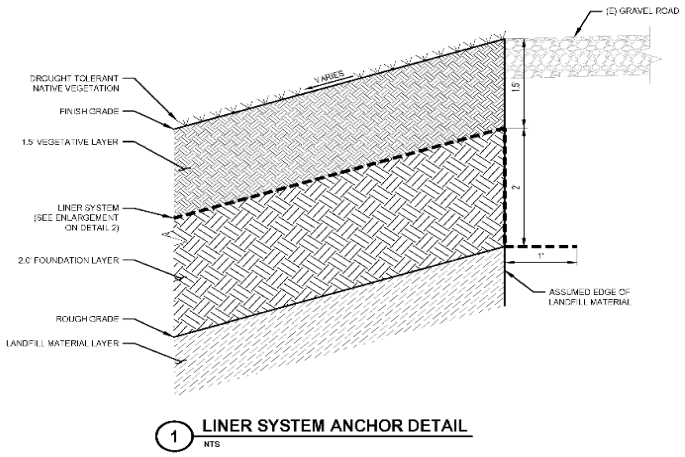
    b. Geotextile cushion layer;

    c. 40-mil LLDPE geomembrane barrier layer;[1]

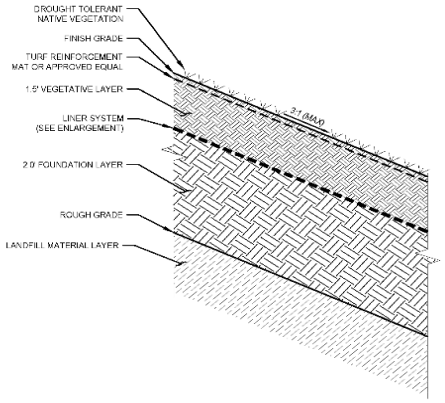
    d. Geocomposite drainage layer[1]; and

    e. Minimum 1-foot erosion resistant vegetative layer.

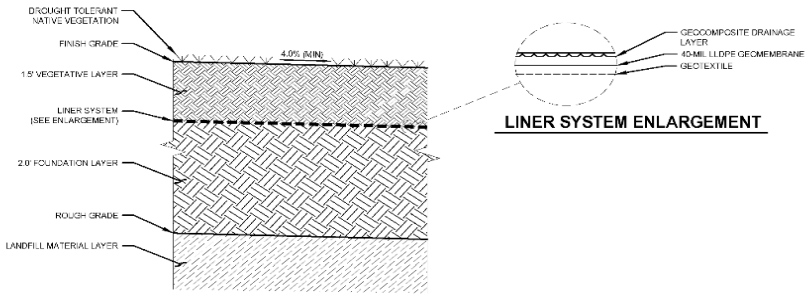
[1]The Discharger has demonstrated that a 40-mil LLDPE geomembrane barrier layer overlain by a geocomposite drainage layer as an engineered alternative to Title 27 section 21090(a)(2) low hydraulic conductivity layer consisting of not less than one foot of soil compacted to attain a hydraulic conductivity of less than $1x10^{-6}$ cm/sec (i.e., 1 ft./yr.) provides lower flow-through rate of liquids than the prescriptive standard in Title 27.




1 LINER SYSTEM ANCHOR DETAIL
NTS




3 STEEP COVER CROSS SECTION
N.T.S.




2 MAIN COVER CROSS SECTION
N.T.S.

1.

# STANDARD PROVISIONS & REPORTING REQUIREMENTS

## Non-Hazardous Discharges of Waste Regulated under Subtitle D and/or Title 27, December 2015 Edition

## A. Applicability

1. These Standard Provisions and Reporting Requirements (SPRRs) are applicable to nonhazardous solid waste disposal sites that are regulated by the Central Valley Regional Water Quality Control Board (hereafter, Central Valley Water Board) pursuant to the provisions of California Code of Regulations, Title 27 ("Title 27"), section 20005 et seq., and municipal solid waste (MSW) landfills that are subject to the Federal Subtitle D regulations contained in 40 Code of Federal Regulations section 258 (hereafter, "Subtitle D" or "40 C.F.R. § 258.XX") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62. The Subtitle D regulations are only applicable to MSW landfills and therefore any requirements in these SPRRs that are referenced as coming from Subtitle D are not applicable to non-MSW waste management units such as Class II surface impoundments, Class II waste piles, and non-MSW landfill units. All Subtitle D requirements in these SPRRs are referenced with "[40 C.F.R. § 258.XX]" after the requirement.

2. "Order," as used throughout this document, means the Waste Discharge Requirements (WDRs) to which these SPRRs are incorporated.

3. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.

4. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.

5. If there is any conflicting or contradictory language between the WDRs, the Monitoring and Reporting Program (MRP), or the SPRRs, then language in the WDRs shall govern over either the MRP or the SPRRs, and language in the MRP shall govern over the SPRRs.

6. If there is a site-specific need to change a requirement in these SPRRs for a particular landfill facility, the altered requirement shall be placed in the appropriate section of the WDRs and will supersede the corresponding SPRRs requirement. These SPRRs are standard and cannot be changed as part of the permit writing process or in response to comments, but they will be periodically updated on an as-needed basis.

7. Unless otherwise stated, all terms are as defined in Water Code section 13050 and in Title 27, section 20164.

## B. Terms and Conditions

**1.** Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Central Valley Water Board or the State Water Board, or intentionally or negligently discharging waste, or causing or permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of this Order and the Water Code, which can result in the imposition of civil monetary liability [Wat. Code, § 13350(a)]

**2.** After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [Wat. Code, § 13381]:

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

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

**c.** A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or

**d.** A material change in the character, location, or volume of discharge.

**3.** Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge (ROWD), or other appropriate joint technical document (JTD), with the Central Valley Water Board [Wat. Code, § 13260(c) and § 13264(a)]. A material change includes, but is not limited to, the following:

**a.** An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;

**b.** A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment);

**c.** A change in the type of waste being accepted for disposal; or

**d.** A change to previously-approved liner systems or final cover systems that would eliminate components or reduce the engineering properties of components.

4. Representatives of the Central Valley Water Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [Wat. Code, §13267(c)].

**5.** The Central Valley Water Board will review this Order periodically and will revise these waste discharge requirements when necessary [Wat. Code, § 13263(e) and Title 27, § 21720(b)].

**6.** Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Central Valley Water Board [Wat. Code, § 13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

**7.** A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [Wat. Code, § 13263(g)].

**8.** Technical and monitoring reports specified in this Order are requested pursuant to the Water Code [§13267(b)]. Failure to furnish the reports by the specified deadlines or falsifying information in the reports, are misdemeanors that may be liable civilly in accordance with §13268(b) of the Water Code [Wat. Code, §13268(a)].

## C. Standard Prohibitions

**1.** The discharge of liquid or semi-solid waste (waste containing less than 50 percent solids) is prohibited, except for the following when proposed in the ROWD/JTD and approved by this Order:

**a.** Dewatered sewage or water treatment sludge as described in Title 27, section 20220(c) provided it is discharged above a composite liner with a leachate collection and removal system (LCRS) [Title 27, § 20200(d)(3)].

**b.** Leachate and/or landfill gas condensate that is returned to the composite- lined waste management unit (with an LCRS) from which it came [Title 27, § 20340(g) and 40 C.F.R. § 258.28].

**2.** The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the waste management unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:

a. require a higher level of containment than provided by the unit; or

b. are ‘restricted wastes’; or

c. impair the integrity of containment structures; is prohibited [Title 27, § 20200(b)].

**3.** The discharge of wastes outside of a waste management unit or portions of a unit specifically designed for their containment is prohibited.

**4.** The discharge of solid waste containing free liquid or which may contain liquid in excess of the moisture holding capacity as a result of waste management operations, compaction or settlement is prohibited.

**5.** The discharge of waste to a closed landfill unit is prohibited.

**6.** The discharge of waste constituents to the unsaturated zone or to groundwater is prohibited.

**7.** The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.

## D. Standard Discharge Specifications

1. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the waste management unit and whether or not the wastes are required to be managed as a hazardous waste [Title 27, § 20200(c)] or designated waste [Title 27, § 20210].

2. Leachate and landfill gas condensate collected from a waste management unit shall be discharged to the unit from which it came, or discharged to an appropriate waste management unit in accordance with Title 27 and in a

manner consistent with the waste classification of the liquid [Title 27, § 20200(d) and § 20340(g)].

3. The discharge of leachate or landfill gas condensate is restricted to those portions of a waste management unit that has a composite liner system and LCRS meeting the Federal Subtitle D requirements [40 C.F.R. § 258.28].

4. Leachate and condensate returned to a composite-lined landfill unit (when approved by this Order) shall be discharged and managed such that it does not cause instability of the waste, does not cause leachate seeps, does not generate additional landfill gas that is not extracted from the landfill by an active landfill gas extraction system, does not cause contaminants to enter surface water runoff, and does not cause leachate volumes to exceed the maximum capacity of the LCRS.

5. Any discharge of waste outside the portion of the landfill that was already covered with waste as of the landfill unit's respective Federal Deadline constitutes a "lateral expansion" and requires the installation of an approved composite liner system and LCRS [40 C.F.R. § 258.40(b)].

6. Wastes shall be discharged only into waste management units specifically designed for their containment and/or treatment, as described in this Order.

7. The discharge shall remain within the designated disposal area at all times.

8. The discharge of waste shall not cause a nuisance condition [Wat. Code, § 13050(m)].

## E. Standard Facility Specifications

**1.** All waste management units shall be designed, constructed, and operated to ensure that wastes, including leachate, will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [Title 27, § 20240(c)], including the capillary fringe.

**2.** Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].

**3.** Interim cover is daily and intermediate cover [Title 27, § 20750(a)]. Interim cover over wastes discharged to a landfill shall be designed and

constructed to minimize percolation of liquids through the wastes [Title 27, § 20705(b)].

**4.** Intermediate cover consisting of compacted earthen material of at least twelve (12) inches shall be placed on all surfaces of the fill where no additional solid waste will be deposited within **180 days** [Title 27, § 20700(a)].

**5.** During wet weather conditions, the facility shall be operated and graded to minimize leachate generation.

**6.** The Discharger shall immediately notify the Central Valley Water Board staff of any slope failure occurring at a waste management unit. Any failure which threatens the integrity of containment features or the waste management unit shall be promptly corrected in accordance with an approved method [Title 27, § 21710(c)(2)].

**7.** The Discharger shall **immediately** notify Central Valley Water Board staff of any flooding, unpermitted discharge of waste off-site or outside of waste management units, equipment failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.

**8.** The Discharger shall limit water used for facility maintenance within landfill areas to the minimum amount necessary for dust control and construction.

9. The Discharger shall maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.

**10.** The Discharger shall lock all groundwater monitoring wells with a lock on the well cap or monitoring well box. All monitoring devices shall be clearly labeled with their designation including all monitoring wells, LCRS risers, and lysimeter risers and shall be easily accessible for required monitoring by authorized personnel. Each monitoring device shall be clearly visible and be protected from damage by equipment or vehicles.

**11.** The Discharger shall ensure that methane and other landfill gases are adequately vented, removed from landfill units, or otherwise controlled to prevent the danger of adverse health effects, nuisance conditions, degradation, or the impairment of the beneficial uses of surface water or groundwater due to migration through the unsaturated zone.

**12.** The Discharger shall maintain the depth of the fluid in the sump of each landfill unit at the minimum needed for efficient pump operation (the depth at which the pump turns on given the pump intake height and maximum pump cycle frequency).

**13.** The depth of fluid on the landfill liner shall not exceed **30 centimeters** (cm) [40 C.F.R. § 258.40(a)(2)]. This regulation is interpreted by the Central Valley Water Board to exclude the leachate sump. The Discharger shall **immediately** notify the Central Valley Water Board staff by telephone, and follow up in writing within **seven** days if monitoring reveals that the depth of fluid on any portion of the liner (excluding the sump) exceeds 30 cm (approximately 12 inches). The written notification shall include a timetable for remedial or corrective action necessary to achieve compliance with the leachate depth limitation.

**14.** Each LCRS shall be tested at least annually to demonstrate proper operation. The results of the tests shall be compared with earlier tests made under comparable conditions [Title 27, § 20340(d)].

**15.** The Discharger shall maintain a *Storm Water Pollution Prevention* Plan and *Monitoring Program and Reporting Requirements* in accordance with State Water Board Order No. 2014-0057-DWQ (Industrial General Permit) or most recent general industrial storm water permit), or retain all storm water on-site.

**16.** Internal site drainage from surface or subsurface sources shall not contact or percolate through wastes.

17. New MSW landfill units or lateral expansions of existing units shall not be sited in a “wetland” [as defined in 40 C.F.R. § 232.29(r)] unless there is no practical alternative; steps have been taken to assure no net loss of wetland; the landfill unit will not degrade the wetland; the unit will not jeopardize threatened or endangered species or produce adverse modification of a critical habitat or violate any requirement of the Marine Protection, Research, and Sanctuaries Act of 1972 [40 C.F.R. § 258.12].

## F. Standard Construction Specifications

**1.** The Discharger shall submit for review and approval at least 90 days prior to proposed construction, design plans and specifications for new landfill modules that include the following:

**a.** Detailed construction drawings showing all required liner system components, the LCRS, leachate sump, unsaturated zone

monitoring system, any proposed landfill gas monitoring and extraction points, and access to the LCRS for required annual testing.

**b.** A Construction Quality Assurance (CQA) Plan prepared by a California-registered civil engineer or certified engineering geologist, and that meets the requirements of Title 27, section 20324.

**c.** A geotechnical evaluation of the area soils, evaluating their use as the base layer or reference to the location of this information in the ROWD/JTD [Title 27, § 21750(f)(4)].

**d.** Information about the seismic design of the proposed new module (or reference to the location of this information in the ROWD/JTD) in accordance with Title 27, section 20370.

**e.** A revised water quality monitoring plan for groundwater detection monitoring (or information showing the existing plan is adequate) in accordance with Title 27, section 20415.

**f.** An Operation Plan (or reference to the location of this information in the ROWD/JTD) meeting the requirements of Title 27, section 21760(b).

**2.** All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge.

**3.** The Discharger shall not proceed with construction until the construction plans, specifications, and all applicable construction quality assurance plans have been approved. Waste management units shall receive a final inspection and approval of the construction by Central Valley Water Board staff before use of the unit commences [Title 27, § 20310(e)].

4. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a waste management unit's containment features or monitoring systems shall be approved by a California registered civil engineer or a certified engineering geologist [Title 27, § 21710(d)].

**5.** Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [Title 27, § 20320(a)].

**6.** Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [Title 27, § 20365(a)].

**7.** The Discharger shall design storm water conveyance systems for Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

**8.** All Class III landfill units shall be designed to withstand the maximum probable earthquake and Class II waste management units shall be designed to withstand maximum credible earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion, or gas [Title 27, § 20370(a)].

**9.** The Discharger shall perform stability analyses that include components to demonstrate the integrity of the landfill foundation, final slopes, and containment systems under both static and dynamic conditions throughout the landfill's life including the closure period and post-closure maintenance period [Title 27, § 21750(f)(5)].

**10.** New waste management units and expansions of existing units shall not be located on a known Holocene fault [Title 27, § 20260(d)].

**11.** Liners shall be designed and constructed to contain the fluid, including landfill gas, waste, and leachate [Title 27, § 20330(a)].

**12.** Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [Title 27, § 20320(c)].

13. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [Title 27, § 20320(b)].

**14.** A test pad for each barrier layer and final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [Title 27, § 20324(g)(1)(A)].

**15.** Performance requirements for geosynthetic membranes shall include, but are not limited to, a need to limit infiltration of water, to the greatest extent possible; a need to control landfill gas emissions; mechanical compatibility with stresses caused by equipment traffic, and for final covers the result of differential settlement over time and durability throughout the post-closure maintenance period [Title 27, § 20324(i)(1)].

**16.** The Discharger shall ensure proper preparation of the subgrade for any liner system that includes a GCL so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.

**17.** The Discharger shall propose an electronic leak location survey of the top liner for any new landfill module in the construction quality assurance plan unless the Discharger demonstrates that a leak location survey is not needed.

**18.** Leachate collection and removal systems are required for Class II landfills and surface impoundments, MSW landfills, and for Class III landfills which have a liner or which accept sewage or water treatment sludge [Title 27, § 20340(a)].

**19.** All new landfill units or lateral expansions of existing units that require a LCRS shall have a blanket-type LCRS that covers the bottom of the unit and extends as far up the sides as possible. The LCRS shall be of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the unit [Title 27, § 20340(e)].

**20.** The LCRS shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the waste management unit [Title 27, § 20340(b)].

**21.** Leachate collection and removal systems shall be designed and operated to function without clogging through the scheduled closure of the landfill unit and during the post-closure maintenance period.

22. The LCRS shall be designed to maintain the depth of fluid over any portion of the LCRS of no greater than 30 cm [40 C.F.R. § 258.40(a)(2)], excluding the leachate sump. The leachate sump, leachate removal pump, and pump controls shall be designed and set to maintain a fluid depth no greater than the minimum needed for efficient pump operation [Title 27, § 20340(c)].

**23.** All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [Title 27, § 20323].

**24.** The Construction Quality Assurance program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [Title 27, § 20324(b)(2)].

**25.** The Discharger shall ensure that a third party independent of both the Discharger and the construction contractor performs all of the construction quality assurance monitoring and testing during the construction of a liner system.

**26.** The Discharger shall notify Central Valley Water Board staff at least **14 days** prior to commencing field construction activities including construction of a new lined cell or module, construction of a final cover, or any other construction that requires Central Valley Water Board staff approval under this Order.

**27.** The Discharger shall submit for review and approval at least **60 days** prior to proposed discharge, final documentation required in Title 27 Section 20324(d)(1)(C) following the completion of construction of a new lined landfill module. The report shall be certified by a registered civil engineer or a certified engineering geologist and include a statement that the liner system was constructed in accordance with the approved design plans and specifications, the CQA Plan, the requirements of the WDRs, and that it meets the performance goals of Title 27. The report shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, the construction quality assurance plan, and the performance goals of Title 27.

**28.** The Discharger shall not discharge waste onto a newly constructed liner system until the final documentation report has been reviewed and an acceptance letter has been received.

**29.** Prior to placement of waste in a new landfill unit, the Discharger shall monitor any pan lysimeter for the unit that has received enough rainfall to flood the LCRS sump. If liquid is detected in the pan lysimeter, the Discharger shall verify that the liquid is not from a leak in the primary liner system before waste can be accepted to the new module.

## G. Standard Closure and Post-Closure Specifications

1. The Discharger shall submit a final or partial final closure and post-closure maintenance plan at least **two years** prior to the anticipated date of closure [Title 27, § 21780(d)(1)].

**2.** The Discharger shall notify the Central Valley Water Board in writing that a landfill unit or portion of a unit is to be closed either at the same time that the California Department of Resources Recycling and Recovery (CalRecycle) is notified or **180 days** prior to beginning any final closure activities, whichever is sooner [Title 27, § 21710(c)(5)(A)]. The notice shall include a statement that all closure activities will conform to the most recently approved final or partial final closure plan and that the plan provides for site closure in compliance with all applicable federal and state regulations [Title 27, § 21710(c)(5)(C)].

**3.** Initiation of closure activities shall begin within **30 days** of final waste receipt, or within one year of receipt of most recent waste if additional capacity remains [40 C.F.R. § 258.60(f)].

**4.** Closure activities shall be completed within **180 days** of the beginning of closure activities unless an extension is granted by the Executive Officer [40 C.F.R. § 258.60(g)].

**5.** The Discharger shall carry out both mandatory closure and normal closure of a waste management unit or a portion of a unit in accordance with a closure and post-closure maintenance plan approved by the Central Valley Water Board [Title 27, § 20950(a)(1)] through the issuance of closure waste discharge requirements.

**6.** The Discharger shall notify the Central Valley Water Board that a preliminary closure and post-closure maintenance plan has been prepared and placed in the operating record by the date of initial receipt of waste at any new MSW landfill unit or lateral expansion of any existing unit [40

C.F.R. § 258.60(d)]. This notification shall be included in the cover letter transmitting the preliminary closure and post-closure maintenance plan.

**7.** In addition to the applicable provisions of Title 27, the preliminary closure and/or the post-closure maintenance plans for MSW landfill units shall include the following:

**a.** A description of the steps necessary to close all MSW landfill units at any point during their active life in accordance with the cover design requirements [40 C.F.R. § 258.60(c)];

**b.** An estimate of the largest area of the landfill unit(s) ever requiring a final cover at any time during the active life of the unit(s) [40 C.F.R. § 258.60(c)(2)];

**c.** An estimate of the maximum inventory of wastes ever on-site over the active life of the waste management facility [40 C.F.R. § 258.60(c)(3)]; and

d. A schedule for completing all activities necessary to satisfy the closure criteria in 40 C.F.R. section 258.60 [40 C.F.R. § 258.60(c)(4)].

**8.** The final closure and post-closure maintenance plan for the waste management unit shall include at least the following: an itemized cost analysis, closure schedule, any proposed final treatment procedures, map, changes to the unit description presented in the most recent ROWD, federal requirements for a MSW facility, land use of the closed unit, and a construction quality assurance plan [Title 27, § 21769(c) & (d)].

**9.** Closure of each waste management unit shall be under the direct supervision of a registered civil engineer or certified engineering geologist [Title 27, § 20950(b)].

**10.** The final cover of closed landfills shall be designed, graded, and maintained to prevent ponding and soil erosion due to high run-off velocities [Title 27, § 21090(b)(1)(A)].

**11.** The final grading design shall be designed and approved by a registered civil engineer or certified engineering geologist [Title 27, § 21090(b)(1)(C)].

**12.** All final cover designs shall include a minimum 1-foot thick erosion resistant layer [Title 27, § 21090(a)(3)(A)].

**13.** The Discharger shall close the landfill with minimum 15-foot wide benches every 50 vertical feet [Title 27, § 21090(a)].

**14.** Final cover slopes shall not be steeper than a horizontal to vertical ratio of one and three quarters to one and designs having any slopes steeper than a horizontal to vertical ratio of three to one, or having a geosynthetic component, shall have these aspects of their design specifically supported in the slope stability report required in Title 27, section 21750(f)(5) [Title 27, § 21090(a)].

**15.** For any portions of the final cover installed after July 18, 1997, for which the Central Valley Water Board has not approved a slope and foundation stability report on or before that date, the Discharger shall meet the requirements of Title 27, section 21750(f)(5) [Title 27, § 21090(a)(6)].

**16.** Areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion [Title 27, § 21090(b)(2)].

**17.** The Discharger shall design storm water conveyance systems for closed Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for closed Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

**18.** Closed landfill units shall be provided with at least two permanent surveying monuments, installed by a licensed land surveyor or by a registered civil engineer, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period [Title 27, § 20950(d)].

**19.** Following closure of any MSW landfill units, the Discharger shall notify the Executive Officer that the deed to the landfill facility property, or some other instrument that is normally examined during a title search, has been recorded and a copy placed in the operating record. The notation on the deed shall in perpetuity notify any potential purchaser of the property that the land has been used as a landfill facility and that use of the land is restricted to the planned use described in the post-closure maintenance plan [Title 27, § 20515(a)(4) and §21170, and 40 C.F.R. § 258.60(i)].

**20.** Construction or repair of the final cover system's low-hydraulic conductivity layer is to be carried out in accordance with an approved construction quality assurance plan [Title 27, § 21090(b)(1)(E)].

**21.** The Discharger shall incorporate into the closure and post-closure maintenance plan a cover-integrity monitoring and maintenance program which includes at least the following: a periodic leak search, periodic identification of other problem areas, prompt cover repair, and vegetation maintenance [Title 27, § 21090(a)(4)].

**22.** The Discharger shall complete a final cover survey upon completion of closure activities for that portion of the landfill. The final cover surveys shall include an initial survey and map [Title 27, § 21090(e)(1). **Every five years**, the Discharger shall conduct a survey of the closed landfill cover and submit an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer [Title 27, § 21090(e)(2)].

**23.** Within **30 days** of completion of all closure activities, the Discharger shall certify that all closure activities were performed in accordance with the most recently approved final closure plan and CQA Plan, and in accordance with all applicable regulations. The Discharger shall also certify that closed landfill units shall be maintained in accordance with and approved post-closure maintenance plan [Title 27, § 21710(c)(6)].

**24.** Within **180 days** of completion of closure construction activities, the Discharger shall submit final documentation of closure, including the Certification of Closure. The closure documents shall include a final construction quality assurance report and any other documents necessary to support the certification [Title 27, § 21880].

25. The post-closure maintenance period shall continue until the Central Valley Water Board determines that wastes remaining in the landfill unit(s) no longer pose a threat to water quality [Title 27, § 20950(a)(1)].

**26.** The Discharger shall conduct a periodic leak search to monitor of the integrity of the final cover in accordance with the schedule in the approved final post- closure maintenance plan [Title 27, § 21090(a)(4)(A)].

**27.** The Discharger shall periodically inspect and identify problems with the final cover including areas that require replanting, erosion, areas lacking free drainage, areas damaged by equipment operations, and localized areas identified in the required five-year iso-settlement survey [Title 27, § 21090(a)(4)(B)].

**28.** The Discharger shall repair the cover promptly in accordance with a cover repair plan to be included in the final post-closure maintenance plan [Title 27, § 21090(a)(4)(C)].

**29.** Throughout the post-closure maintenance period, the Discharger shall maintain the structural integrity and effectiveness of all containment structures, maintain the final cover as necessary to correct the effects of settlement and other adverse factors, continue to operate the LCRS as long as leachate is generated and detected, maintain the monitoring systems, prevent erosion and related damage of the final cover due to drainage, and protect and maintain surveyed monuments [Title 27, § 21090(c)].

**30.** Post-closure maintenance shall be conducted for a minimum period of 30 years or until the waste no longer poses a threat to environmental quality, whichever is greater [Title 27, § 21180(a) and Title 27, § 21900(a)].

## H. Standard Financial Assurance Provisions

**1.** The Discharger shall establish an irrevocable fund for closure and post-closure maintenance to ensure closure and post-closure maintenance of each classified unit in accordance with an approved closure and post-closure maintenance plan [Title 27, § 20950(f) and § 22207(a)].

**2.** The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management unit [Title 27, §20380(b), § 22221, and § 22222].

## I. Standard Monitoring Specifications

1. The water quality monitoring program shall include appropriate and consistent sampling and analytical procedures and methods designed to ensure that monitoring results provide a reliable indication of water quality at all monitoring points and background monitoring points [Title 27, § 20415(e)(4) and 40 C.F.R. § 258.53(b)].

**2.** All monitoring systems shall be designed and certified by a registered geologist or a registered civil engineer [Title 27, § 20415(e)(1)].

**3.** All monitoring wells shall be cased and constructed in a manner that maintains the integrity of the monitoring well bore hole and prevents the bore hole from acting as a conduit for contaminant transport [Title 27, § 20415(b)(4)(A)].

**4.** All sample chemical analyses of any material shall be performed by a laboratory certified by the California Department of Health Services [Wat. Code, § 13176(a)].

**5.** A Detection Monitoring Program for a new landfill facility shall be installed, operational, and one year of monitoring data collected from background monitoring points prior to the discharge of wastes [Title 27, § 20415(e)(6)].

**6.** Background for water samples or soil-pore gas samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point).

**7.** The Discharger shall submit for approval, establish, and maintain an approved Sample Collection and Analysis Plan. The Sample Collection and Analysis Plan shall at a minimum include:

**a.** Sample collection procedures describing purging techniques, sampling equipment, and decontamination of sampling equipment;

**b.** Sample preservation information and shipment procedures;

**c.** Sample analytical methods and procedures;

**d.** Sample quality assurance/quality control (QA/QC) procedures;

**e.** Chain of Custody control; and

**f.** Sample analysis information including sample preparation techniques to avoid matrix interferences, method detection limits (MDLs), practical quantitation limits (PQLs) and reporting limits (RLs), and procedures for reporting trace results between the MDL and PQL.

If required by the Executive Officer, the Discharger shall modify the Sample Collection and Analysis Plan to conform with this Order.

**8.** For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken **within a span not to exceed 30 days**, unless a longer time period is approved, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for

Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan. Appropriate sample preparation techniques shall be used to minimize matrix interferences.

**9.** If methods other than USEPA-approved methods or Standard Methods are used, or there is a proposed alternant USEPA method than the one listed in the MRP, the proposed methodology shall be submitted for review and approval prior to use, including information showing its equivalence to the required method.

**10.** The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.

**11.** The laboratory reporting limit (RL) for all reported monitoring data shall be set no greater than the practical quantitation limit (PQL).

**12.** **"Trace" results** - results falling between the MDL and the PQL - shall be reported as such, and shall be accompanied both by the estimated MDL and PQL values for that analytical run.

**13.** Laboratory data shall not be altered or revised by the Discharger. If the Discharger observes potential lab errors, it shall identify the issue in the monitoring report and shall describe steps that will be taken to prevent similar errors in the future.

14. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs. MDLs and PQLs shall be reported.

**15.** If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the

results shall be flagged in the laboratory report accordingly, along with estimates of the detection limit and quantitation limit actually achieved. The **MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result**. The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.

**16.** All **QA/QC** data shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and signature of a responsible person from the laboratory. **Sample results shall be reported unadjusted for blank results or spike recoveries**. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged, but the analytical results shall not be adjusted.

**17.** Unknown chromatographic peaks shall be reported, flagged, and tracked for potential comparison to subsequent unknown peaks that may be observed in future sampling events. Identification of unknown chromatographic peaks that recur in subsequent sampling events may be required.

**18.** The sampling interval of each monitoring well shall be appropriately screened and fitted with an appropriate filter pack to enable collection of representative groundwater samples [Title 27, § 20415(b)(4)(B)]. Groundwater samples shall not be field-filtered prior to laboratory analysis [40 C.F.R. § 258.53(b)]. Groundwater samples needing filtering (e.g., samples to be analyzed for dissolved metals) shall be filtered by the laboratory prior to analysis.

**19.** Groundwater elevations shall be measured in each well immediately prior to purging, each time groundwater is sampled. The owner or operator shall determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells which monitor the same waste management area shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which

could preclude accurate determination of groundwater flow rate and direction [40 C.F.R. § 258.53(d)].

**20.** Monitoring wells, piezometers, and other measurement, sampling, and analytical devices must be operated and maintained so that they perform to design specifications throughout the life of the monitoring program [40 C.F.R. § 258.51(c)(2)]. Monitoring devices that cannot be operated and maintained to perform to design specifications shall be replaced after review and approval of a report (i.e., work plan) for the proposed replacement devices.

**21.** All borings are to be logged during drilling under the direct supervision of a registered geologist or registered civil engineer with expertise in stratigraphic well logging [Title 27, § 20415(e)(2)].

**22.** Soils are to be described according to the Unified Soil Classification System [Title 27, § 20415(e)(2)(A)]. Rock is to be described in a manner appropriate for the purpose of the investigation [Title 27, § 20415(e)(2)(B)].

**23.** The Discharger shall submit a work plan for review and approval at least **60 days** prior to installation or abandonment of groundwater monitoring wells.

**24.** The Discharger shall provide Central Valley Water Board staff a minimum of **one-week** notification prior to commencing any field activities related to the installation or abandonment of monitoring devices.

**25.** The water quality protection standard shall consist of the constituents of concern (COC), concentration limits, and the point of compliance. The water quality protection standard shall apply during the active life of the waste management unit, closure period, post-closure maintenance period, and any compliance period under Title 27, section 20410 [Title 27, § 20390].

**26.** The point of compliance at which the water quality protection standard applies is a vertical surface located at the hydraulically downgradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit [Title 27, § 20405).

**27.** The compliance period is the minimum period of time during which the Discharger shall conduct a water quality monitoring program and is the number of years equal to the active life of the waste management unit plus the closure period [Title 27, § 20410(a)].

**28.** The groundwater monitoring system shall include a sufficient number of monitoring points, installed at appropriate locations, to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater that has not been affected by a release from the waste management unit [Title 27, § 20415(b)(1)(A)].

**29.** The Detection Monitoring Program shall include a sufficient number of monitoring points, installed at appropriate locations and depths to yield groundwater samples from the uppermost aquifer that represent the quality of groundwater passing the point of compliance to allow the detection of a release from the waste management unit [Title 27, § 20415(b)(1)(B)1.].

**30.** Additional monitoring points shall be added as necessary to provide the best assurance of the **earliest possible detection** of a release from the waste management unit [Title 27, § 20415(b)(1)(B)2.].

**31.** The Detection Monitoring Program shall also include a sufficient number of monitoring points installed at appropriate depths and locations to yield groundwater samples from other aquifers or perched zones not already monitored to provide the earliest possible detection of a release from the waste management unit [Title 27, § 20415(b)(1)(B)3. and 4., and §20420(b)].

**32.** A surface water monitoring system shall be established to monitor each surface water body that could be affected by a release from the waste management unit [Title 27, § 20415(c)].

**33.** An unsaturated zone monitoring system shall be established for each waste management unit [Title 27, § 20415(d)].

**34.** The Discharger shall notify Central Valley Water Board staff within **seven days** if fluid is detected in a previously dry LCRS, unsaturated zone monitoring system, or if a progressive increase is detected in the volume of fluid in a LCRS [Title 27, § 21710(c)(3)].

**35.** Driller’s logs for all monitoring wells shall to be submitted to the Central Valley Water Board and the Department of Water Resources [Wat. Code, § 13751 and Title 27, § 20415(b)(3)].

**36.** Groundwater elevation, temperature, electrical conductivity, turbidity, and pH are to be accurately measured at each well each time groundwater is sampled [Title 27, § 21415(e)(13)].

**37.** The groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation being monitored shall be determined at least quarterly [Title 27, § 20415(e)(15)].

**38.** The Discharger shall graph all analytical data from each monitoring point and background monitoring point and shall submit the graphs to the Central Valley Water Board annually [Title 27, § 20415(e)(14)].

**39.** For each waste management unit, the Discharger shall collect all data necessary for selecting appropriate data analysis methods for establishing background values for each constituent of concern and for each monitoring parameter [Title 27, § 20420(c)]. The Discharger shall propose a data analysis method that includes a detailed description of the criteria to be used for determining "measurably significant" (as defined in Title 27, section 20164) evidence of a release from the waste management unit and determining compliance with the water quality protection standard [Title 27, § 20415(e)(6) and (7)].

**40.** For statistical analysis of data, the Discharger shall use one of the methods described in Title 27, section 20415(e)(8)(A)-(E). A non-statistical data analysis method can be used if the method can achieve the goal of the particular monitoring program at least as well as the most appropriate statistical method [Title 27, § 20415(e)(8)]. The Discharger shall use a statistical or nonstatistical data analysis method that complies with Title 27, section 20415(e)(7, 8, 9, and 10), to compare the concentration of each constituent of concern or monitoring parameter with its respective background concentration to determine whether there has been a measurably significant evidence of a release from the waste management unit. For any given monitoring point at which a given constituent has already exhibited a measurably significant indication of a release at that monitoring point, the Discharger may propose to monitor the constituent, at that well, using a concentration-versus-time plot.

**41.** The Discharger may propose an alternate statistical method [to the methods listed under Title 27, section 20415(e)(8)(A-D)] in accordance with Title 27, section 20415(e)(8)(E), for review and approval.

**42.** The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to Title 27, section 20415(e)(7) that is used in the statistical method shall be the **lowest concentration (or value) that can be**

**reliably achieved** within limits of precision and accuracy specified in the WDRs or an approved Sample Collection and Analysis Plan for routine laboratory operating conditions that are available to the facility. The Discharger's technical report (Sample Collection and Analysis Plan and/or Water Quality Protection Standard Report), pursuant to Title 27, section 20415(e)(7), shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, CCR, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and used in appropriate statistical or non-statistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".

**43.** The water quality protection standard for organic compounds which are not naturally occurring and not detected in background groundwater samples shall be taken as the detection limit of the analytical method used (e.g., USEPA methods 8260 and 8270).

**44.** Alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) if part of an approved water quality protection standard. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Central Valley Water Board staff.

**45. Confirmation of Measurably Significant Evidence of a Release.** Whenever a constituent is detected at a detection monitoring point at a concentration that exceeds the concentration limit from the water quality protection standard, the Discharger shall conduct verification sampling to confirm if the exceedance is due to a release or if it is a false-positive (unless previous monitoring has already confirmed a release for that constituent at that monitoring point). An exceedance of the concentration limit from the water quality protection standard is considered measurably significant evidence of a release that must be either confirmed or denied. There are two separate verification testing procedures:

**a.** Standard Monitoring Specification I.46 provides the procedure for analytes that are detected in less than 10% of the background

samples such as non- naturally occurring constituents like volatile organic compounds; and

**b.** Standard Monitoring Specification I.47 provides the procedure for analytes that are detected in 10% or greater of the background samples such as naturally occurring constituents like chloride.

**46. Verification Procedure for Analytes Detected in Less than 10% of Background Samples.** The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:

**a. Initial Determination of Measurably Significant Evidence of a Release.** Identify each analyte in the current detection monitoring point sample that exceeds either its respective MDL or PQL, and for which a release has not been previously confirmed. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if ***either***:

**i.** The data contains two or more analytes that equal or exceed their respective MDLs; or

ii. The data contains one or more analyte that equals or exceeds its PQL.

**b. Discrete Retest** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)]:

**i.** In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.46.a., above) that there is a preliminary indication of a release, then the Discharger shall immediately notify Central Valley Water Board staff by phone or e-mail and, within 30 days of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated and analyze them for the constituents that caused the need for the retest.

**ii. Confirmation of a Release.** As soon as the retest data are available, the Discharger shall conclude that measurably significant evidence of a release is confirmed if (not including the original sample) two or more analytes equal or exceed

their respective MDLs or if one or more analyte equals or exceeds its PQL. The Discharger shall then:

**(A)** **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail within seven days of the verbal notification; and

**(B)** Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.

**(C)** Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

**47. Verification Procedure for Analytes Detected in 10% or Greater of the Background Samples.** The Discharger shall use either a statistical or non-statistical method pursuant to Title 27, section 20415(e)(8)(E) for all analytes that are detected in 10% or greater of the background samples. The Discharger shall use one of the statistical methods required in Title 27, section 20415(e)(8)(E) unless another method has been proposed by the Discharger in a Water Quality Protection Standard Report (or equivalent report) and approved by the Central Valley Water Board in a Monitoring and Reporting Program pursuant to Title 27, section 20415(e)(8)(A-D)] or section 20415(e)(8)(E). The method shall be implemented as follows:

a. **Initial Determination of Measurably Significant Evidence of a Release.** The Discharger shall compare the value reported by the laboratory for each analyte to the statistically-derived concentration limit from the most recent report (Annual Monitoring Report or Water Quality Protection Standard Report) that uses the approved statistical procedure. If the value exceeds the concentration limit for that constituent, the Discharger shall conclude that there in measurably significant evidence of a release [Title 27, § 20420(i)].

**b.** **Retest Method** [Title 27, § 20415(e)(8)(E) and § 20420(j)(1-3)].

**i.** In the event that the Discharger or Central Valley Water Board staff concludes (pursuant to paragraph I.47.a., above) that there is a preliminary indication of a release, then the

Discharger shall immediately notify Central Valley Water Board staff by phone or e-mail and, within 30 days [Title 27, § 20415(e)(3)] of such indication, the Discharger shall implement a verification procedure/retest option, in accordance with Title 27, sections 20415(e)(8)(E) and 20420(j)(2). The verification procedure shall include either a single "composite" retest (i.e., a statistical analysis that augments and reanalyzes the data from the monitoring point that indicated a release) or shall consist of at least two "discrete" retests (i.e., statistical analyses each of which analyzes only newly-acquired data from the monitoring point that indicated a release) [Title 27, § 20415(e)(8)(E)]. The Discharger may use an alternate method previously approved by the Central Valley Water Board and included in the Monitoring and Reporting Program. The verification procedure shall comply with the requirements of Title 27, section 20415(e)(8)(E) in addition to the performance standards of Title 27, section 20415(e)(9). The retest samples shall be collected from the monitoring point where the release is preliminarily indicated and shall be analyzed for the constituents that caused the need for the retest. For any indicated monitoring parameter or constituent of concern, if the retest results of one or more of the retest data suites confirm the original indication, the Discharger shall conclude that measurably significant evidence of a release has been confirmed.

**ii.** **Confirmation of a Release.** As soon as the retest data are available, the Discharger shall evaluate the results pursuant to paragraph I.47.b.1, above and shall:

**(A)** **Immediately** verbally notify the Central Valley Water Board whether or not the retest confirmed measurably significant evidence of a release for the analyte at the monitoring point, and follow up with written notification submitted by certified mail within seven days of the verbal notification; and

**(B)** Carry out the requirements of Section J, **RESPONSE TO A RELEASE** if a release has been confirmed.

**(C)** Add any five-year analyte that is confirmed per this method to the monitoring parameter list such that it is monitored during each regular monitoring event.

**48. Physical Evidence of a Release.** If the Discharger determines that there is a significant physical evidence of a release, the Discharger shall immediately verbally notify Central Valley Water Board staff and provide written notification by certified mail within 7 days of such determination, and within 90 days shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program [Title 27, § 20385(a)(3) and § 20420(l)(1) & (2)].

## J. Response to Release

**1.** Measurably Significant Evidence of a Release Has Been Confirmed. If the Discharger has confirmed that there is measurably significant evidence of a release from a waste management unit pursuant to Standard Monitoring Specification I.46 or I.47, then the Discharger shall:

**a.** **Immediately** sample all monitoring points in the affected medium at that waste management unit and determine the concentration of all monitoring parameters and constituents of concern for comparison with established concentration limits. Because this constituent of concern scan does not involve statistical testing, the Discharger will need to collect and analyze only a single water sample from each monitoring point in the affected medium [Title 27, § 20420(k)(1)].

**b.** **Within 14 days** of confirming measurably significant evidence of a release, the Discharger shall (for releases from MSW landfill units) notify all persons who own the land or reside on the land that directly overlies any portion of the plume of contamination if contaminants have migrated off-site if indicated by sampling of detection monitoring wells [40 C.F.R. § 258.55(g)(1)(iii)].

**c.** **Within 90 days** of confirming measurably significant evidence of a release, the Discharger shall submit an amended report of waste discharge to establish an Evaluation Monitoring Program meeting the requirements of Title 27, sections 20420(k)(5)(A-D), including but not limited to the results of sampling pursuant to paragraph J.1.a, above. The Evaluation Monitoring Program shall be designed for the collection and analysis of all data necessary to assess the nature and extent of the release and to determine the spatial distribution and concentration of each constituent throughout the

zone affected by the release [Title 27, § 20420(k)(5) and § 20425(b)]. For releases from MSW landfill units, the Evaluation Monitoring Program shall also include any additional proposals necessary to comply with 40 C.F.R. § 258.55, particularly the additional monitoring well required by 40 C.F.R. § 258.55(g)(1)(ii).

**d.** **Within 180 days** of confirming measurably significant evidence of a release, the Discharger shall submit to the Central Valley Water Board an initial engineering feasibility study for a Corrective Action Program necessary to meet the requirements of Title 27, section 20430. At a minimum, the initial engineering feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [Title 27, § 20420(k)(6)].

**e.** If the Discharger confirms that there is measurably significant evidence of a release from the waste management unit at any monitoring point, the Discharger may attempt to demonstrate that a source other than the waste management unit caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to Title 27, section 20420(k)(7) in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements and due dates of Title 27, sections 20420(k)(6) & (7) unless Central Valley Water Board staff agree that the demonstration successfully shows that a source other than the waste management unit caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In order to make this demonstration, the Discharger shall notify the Central Valley Water Board by certified mail of the intent to make the demonstration **within seven days** of determining measurably significant evidence of a release, and shall submit a report **within 90 days** of determining measurably significant evidence of a release [Title 27, § 20420(k)(7)].

**f.** **Within 90 days** of the date that the Evaluation Monitoring Program from paragraph J.1.c is approved (the date is it established), the Discharger shall complete and submit the following:

i. **Results and Assessment for the Evaluation Monitoring Program.** A report with the results and assessment based on the approved Evaluation Monitoring Program [Title 27, § 20425(b)].

ii. **Updated Engineering Feasibility Study.** An updated engineering feasibility study for corrective action based on the data collected to delineate the release and data from the ongoing monitoring program required under Title 27, section 20425(e) [Title 27, § 20425(c)].

iii. **Amended ROWD for a Corrective Action Program.** An amended report of waste discharge to establish a Corrective Action Program meeting the requirements of Title 27, section 20430 based on the data collected to delineate the release and based on the updated engineering feasibility study [Title 27, § 20425(d)].

**g.** The Discharger shall (for releases from MSW landfill units) discuss the results of the updated engineering feasibility study, prior to the final selection of a remedy, in a public meeting with interested and affected parties [40 C.F.R. § 258.56(d)].

## K. General Provisions

**1.** In the event the Discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the Discharger shall notify the appropriate Central Valley Water Board office by telephone as soon as it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing **within two weeks**. The written notification shall state the nature, time, and cause of noncompliance, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.

**2.** All reports and transmittal letters shall be signed by persons identified below:

**a.** For a corporation: by a principal executive officer of at least the level of senior vice-president.

**b.** For a partnership or sole proprietorship: by a general partner or the proprietor.

**c.** For a municipality, state, federal or other public agency: by either a principal executive officer or ranking elected or appointed official.

**d.** A duly authorized representative of a person designated in a, b or c above if:

**i.** The authorization is made in writing by a person described in a, b, or c of this provision;

**ii.** The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a Unit, superintendent, or position of equivalent responsibility (a duly authorized representative may thus be either a named individual or any individual occupying a named position); and

iii. The written authorization is submitted to the Central Valley Water Board.

**e.** Any person signing a document under this Section shall make the following certification:

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

**3.** The Discharger shall take all reasonable steps to minimize any adverse impact to the waters of the State resulting from noncompliance with this Order. Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.

**4.** The owner of the waste management facility shall have the continuing responsibility to assure protection of waters of the state from discharged wastes and from gases and leachate generated by discharged waste

during the active life, closure, and post-closure maintenance period of the waste management units and during subsequent use of the property for other purposes.

**5.** The fact that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with this Order shall not be regarded as a defense for the Discharger's violations of this Order.

**6.** The Discharger shall notify the Central Valley Water Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Central Valley Water Board approval following authorization for closure pursuant to the site Notification of Closure [Title 27, § 21710(a)(4)].

**7.** The Discharger shall maintain legible records of the volume and type of each waste discharged at each waste management unit or portion of a unit, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Board or Central Valley Water Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Board or Central Valley Water Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Central Valley Water Board [Title 27, § 21720(f)].

**8.** In the event of any change in landowner or the operator of the waste management facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.

**9.** In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Central Valley Water Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [Title 27, § 21710(c)(1)].

**10.** To assume ownership or operation under this Order, the succeeding owner or operator must apply in writing to the Central Valley Water Board requesting transfer of the Order within **14 days** of assuming ownership or operation of this facility. The request must 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 contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory requirements contained in General Provision K.2 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer of this Order shall be approved or disapproved by the Central Valley Water Board.

## L. Storm Water Provisions

**1.** New and existing Class III landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [Title 27, § 20260(c)].

**2.** New and existing Class II landfills shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return period [Title 27, § 20250(c)].

**3.** The Discharger shall design storm water conveyance systems for Class III units for a 100-year, 24-hour storm event, and shall design storm water conveyance systems for Class II units for a 1,000-year, 24-hour storm event [Title 27, § 21750(e)(3)].

**4.** MSW landfills located in a 100-year floodplain shall demonstrate that the landfill unit will not restrict the flow of the 100-year flood, reduce the temporary water storage capacity of the floodplain, or result in washout of solid waste so as to pose a hazard to human health or the environment [40 C.F.R. § 258.11(a)].

**5.** Waste management units and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under the precipitation conditions for the unit [Title 27, § 20365(a)].

**6.** Precipitation on landfills or waste piles which is not diverted by covers or drainage control systems shall be collected and managed through the

LCRS, which shall be designed and constructed to accommodate the precipitation conditions for each class unit [Title 27, § 20365(b)].

**7.** Diversion and drainage facilities shall be designed, constructed, and maintained to [Title 27, § 20365(c)]:

**a.** accommodate the anticipated volume of precipitation and peak flows from surface runoff and under the precipitation conditions for the waste management unit:

**b.** effectively divert sheet flow runoff laterally, via the shortest distance, into the drainage and collection facilities;

**c.** prevent surface erosion;

**d.** control and intercept run-on, in order to isolate uncontaminated surface waters from water that might have come into contact with waste;

**e.** take into account:

**i.** for closed waste management units and for closed portions of units, the expected final contours of the closed unit, including its planned drainage pattern;

**ii.** for operating portions of waste management units other than surface impoundments, the unit's drainage pattern at any given time;

**iii.** the possible effects of the waste management unit's drainage pattern on and by the regional watershed;

**iv.** the design capacity of drainage systems of downstream and adjacent properties by providing for the gradual release of retained water downstream in a manner which does not exceed the expected peak flow rate at the point of discharge if there were no waste management facility; and

**f.** preserve the system's function. The Discharger shall periodically remove accumulated sediment from the sedimentation or detention basins as needed to preserve the design capacity of the system.

8. Collection and holding facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system [Title 27, § 20365(d)].

**9.** Surface and subsurface drainage from outside of a waste management unit shall be diverted from the unit [Title 27, § 20365(e)].

**10.** Cover materials shall be graded to divert precipitation from the waste management unit, to prevent ponding of surface water over wastes, and to resist erosion as a result of precipitation [Title 27, § 20365(f)].

Any drainage layer in the final cover shall be designed and constructed to intersect with the final drainage system for the waste management unit in a manner promoting free drainage from all portions of the drainage layer [Title 27, §20365(f)].

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

[TENTATIVE] WASTE DISCHARGE REQUIREMENTS ORDER R5-2025-XXXX
FOR
CITY OF SACRAMENTO
28TH STREET LANDFILL
SACRAMENTO COUNTY

# INFORMATION SHEET

1. The City of Sacramento owns and has operated the 28th Street Landfill since 1973. The site is located at the northern end of 28th Street, in the northeast area of downtown Sacramento. The landfill is bordered by the American River to the north, Business Interstate 80 to the south, Southern Pacific Railroad tracks to the east, and industrial properties to the west.

## Waste Disposal Areas

2. The Class III landfill was used for the disposal of non-hazardous residential, commercial and industrial municipal solid wastes. Refuse filling took place from the early 1960's until September 1994. The facility includes two classified landfill units and two older, unclassified disposal areas, as follows:

Classified Units

a. A 79.5-acre area known as WMU A. This area was filled from 1971 until 1986. This cell was constructed without a base liner or leachate collection system, which were not required by regulations at the time. A final cover system was installed in phases and was completed in 1997. The cover consists of one foot of intermediate cover soil over the waste materials, overlain by two feet of concrete and asphalt rubble, overlain by one foot of low-permeability clay, overlain by a one-foot vegetative soil layer.

b. A 27.5-acre area, known as WMU B. This area was filled from 1986 until 1994. This cell was constructed with a base liner and leachate collection and removal system. The base liner consists of 1.5 feet of compacted soil/bentonite mix with a maximum permeability of 1x10-7 cm/s, overlain by an additional 1.5 feet of native compacted soil with permeability ranging between 1x10-5 and 1x10-7 cm/s. A final cover system was completed at WMU B in September 1997. The final cover profile is identical to that described above for WMU A.

Unclassified Disposal Areas (filled during the period 1963 through 1971)

c. Approximately 12.5 unpaved acres west of 28th Street

d. Approximately 10 paved acres west of 28th Street

e. Approximately 16 paved acres north of 28th Street .

3. The site also includes approximately 18 acres of non-filled areas including levees and a buffer area between the landfill and the American River, a storm water detention area east of the landfill, buffer areas adjacent to the Southern Pacific Railroad tracks east of the landfill.

## Offsite Acreage

4. Significant acreage was historically landfilled west of the facility. This acreage, including the Dellar Property (the name is that of the current owner, Mr. Lincoln Dellar), is privately owned and was not included in the facility closure. Several offsite monitoring wells for the facility are located in this area, however.

## Closure

5. The Discharger submitted A Final Closure Plan on 18 June 1991. Several amendments and related technical reports followed before closure construction was implemented, including:

   a. Final Closure and Postclosure Plan Amendment No. 2, dated 18 December 1995, by Harding Lawson Associates;

   b. Slope Stability Report, dated 20 December 1995, by Harding Lawson Associates;

   c. Special Provisions & Plans (90% Design) for Construction of the 28th Street Landfill Closure, dated 16 February 1996 by Harding Lawson Associates; and

   d. Sacramento Metropolitan Air Quality Management District Permit to Construct the Landfill Gas Collection and Flare System dated 24 September 1996.

   e. Construction Quality Assurance/Completion Report for Landfill Closure, 9 February 1998, prepared by Harding Lawson Associates. The report documents the installation of the final cover for waste management units (WMU) A and B.

   The above documents were reviewed and approved by Central Valley Water Board staff, Sacramento County Solid Waste Local Enforcement Agency (LEA), and the California Integrated Waste Management Board (CIWMB).

6. A final cover for both WMUs consists of, described from top to bottom as, one-foot of soil cover, one-foot of low permeability clay, two-feet of concrete and asphalt rubble, and one-foot of intermediate soil cover.

7. The 1991 *Final Closure and Post-Closure Maintenance Plan* for the facility increased the final cover elevations of WMU A from 72 feet above MSL to 86 feet above MSL to ensure that positive surface drainage would be maintained during the post-closure period. This change increased the fill capacity of this unit from 5,309,000 cubic yards to 6,514,000 cubic yards. The capacity of WMU B was also slightly increased (by 134,000 cubic yards) as a result of a change in the surface drainage design to "V" ditches. As a result of the increased capacity, the active life of the landfill was extended to September 1994 when the landfill ceased accepting municipal solid wastes. The final cover elevation of WMU B was 63 feet above MSL. Both units were vegetated with native grass.

8. As part of closure, the landfill was graded to prevent ponding water, and a drainage system was installed. Collected storm water is routed through concrete V-ditches that discharge into the American River, or into one of two detention basins in the southwest and southeast corners of the site, respectively. Detention basin locations are shown in Attachment B. Usually dry during summer months, these stormwater basins will discharge to the American River or the City's combined sewer system. The Discharger has obtained coverage under the General Industrial Storm Water Permit for these discharges. The remaining surface water runoff is discharged to the City of Sacramento's sanitary sewer system, which flows to and is treated at the Sacramento Regional Wastewater Treatment Plant. An industrial sewer use permit for the landfill was obtained from the County of Sacramento. The cover and drainage improvements act to prevent or minimize the infiltration of water into waste.

9. A 10-acre portion of the older fill area west of 28th Street and the 16-acre former fill area north of 28th Street (described in **Finding 2**) were covered with, from top to bottom, 3 inches of asphalt concrete (to provide an all-weather surface and prevent infiltration of water), 6 inches of asphalt street grindings, two-feet of concrete and asphalt rubble, and one-foot of soil paved with asphalt concrete. The remaining 12.5-acres of the fill area south of the compost facility was graded to a minimum 3% slope and covered with, from top to bottom, two-feet of soil cover, 6 inches of asphalt street grindings, two-feet of concrete and asphalt rubble, and 6 inches of soil cover.

## Post-Closure Uses

10. WMUs A and B are vegetated with native grass and are currently used only for facility access and LFG collection facilities. The paved disposal area north of 28th Street is now the City's corporation yard and is used for storage, vehicle parking and facility offices. The City Department of Parks and Recreation has

also developed small portions of this area as the Sutter's Landing Park, including pedestrian/bike trails, paved parking, picnic areas and a skate-park area. The paved portion of the unclassified area west of 28th Street (10 acres) was used for composting operations until 2001. This area and the remaining unpaved 12.5 acres are now vacant and controlled by the City Department of Parks and Recreation, which is considering the areas for incorporation into Sutter's Landing Park.

11. Landfill access roads along the landfill unit perimeter were slurry sealed with an asphalt emulsion to maintain an impermeable surface.

## Groundwater

SWAT Investigation

12. An initial Solid Waste Assessment Test (SWAT) investigation conducted in 1985 showed the presence of vinyl chloride and elevated concentrations of inorganic constituents/parameters including electrical conductivity and chloride in groundwater at the facility and south and west of the landfill.

13. In October 1985, the Discharger installed seven groundwater monitoring wells (B-1, B-3, B-4, C-7, C- 8, C-9, and C-10) around WMUs A and B and subsequently confirmed that the shallow groundwater beneath the site had been impacted with volatile organic compounds (VOCs) of which the predominant compound was vinyl chloride. In November and December 1986, the Discharger installed seven (7) more wells to comply with the SWAT Report requirements (B-6, C-11D, C-11S, C-12, C-13, C-14 and C-15). Four of these wells (C-12 though C-15) were located around the inactive disposal areas west of WMU A. Well B-6 was installed north of WMU-A and wells C-11D and C-11S were installed south of WMU B. The last two wells are a shallow and deep pair intended to assess vertical groundwater gradients in the area.

14. A total of twenty (20) VOCs were detected in the wells tested, with vinyl chloride being detected in five wells (B-3, B-6, C-7, C-13, C-14), including detections of vinyl chloride in the same wells on different sampling dates. Concentrations of vinyl chloride reported in the SWAT Report ranged from 0.22 to 19 ug/L, and in wells B-6 and C-7 vinyl chloride concentrations exceeded the California Department of Health Services action level of 2.0 ug/L. The SWAT Report was produced in June 1987.

15. After the SWAT Report and tests were completed, the Discharger expanded the groundwater monitoring network to include five (5) more wells, bringing the total to nineteen (19).

16. In June 1999, the Regional Board conducted an inspection of the landfill facility and prepared an inspection report dated 11 June 1999. The report stated that the Discharger needed to prepare a Corrective Action Plan for the landfill due to a release of VOCs indicated by the groundwater monitoring data. The Discharger submitted a Corrective Action Plan (CAP) in March 2000, prepared by Phase Three Environmental Management in response to the inspection. The March 2000 CAP identified three release mechanisms that may have caused the VOC impact, including: the migration of landfill leachate to groundwater; the direct contact of wastes in the unlined landfill areas with groundwater; and impacts from landfill gas. The report also identified the following corrective actions measures that had already been implemented:

    a. Closure of WMUs A and B;

    b. Capping/covering the Discharger-owned unclassified fill areas north and west of 28th Street, including the former compost area;

    c. Installation of additional storm water controls, including concrete-lined V ditches at WMUs A and B;

    d. Installation of an LFG extraction system at WMUs A and B; and

    e. Removal of leachate from the LCRS sump at WMU B.

17. The Discharger proposed to continue monitoring the effectiveness of these corrective action measures and consider additional corrective action measures as necessary based on the results of post-closure corrective action monitoring Reporting Requirement D.8 of the R5-2004-0039 MRP required that the Discharger submit semiannual reports as to the effectiveness of corrective action.

18. Since completion of landfill closure in 1997, concentrations of VOCs, including vinyl chloride, in compliance wells at the site have declined to low to trace levels.

19. In a 30 May 2003 report *Cost Estimate and Financial Assurance for Corrective Action for Known or Reasonably Foreseeable Releases to Groundwater*, the Discharger requested that Central Valley Water Board staff review their proposal for new corrective action concentration limits (concentration limits greater than background or CLGB) proposed in the Corrective Action Plan dated March 2000.

In a letter dated 5 June 2003, the Central Valley Water Board staff did not approve the request for CLGB because the Discharger did not justify that groundwater clean-up to background levels is technologically or economically infeasible to achieve.

## Landfill Gas

20. Migration of landfill gas from the active site was also identified in 1987. The effects of landfill gas migration include distressed vegetation along the American River and south of the landfill near Interstate Business 80. Elevated levels of ammonia in soil were also found in these areas. As such, the Discharger constructed a passive landfill gas collection trench east of the active site to intercept any landfill gas migrating in that direction.

21. In addition, a comprehensive landfill gas collection system was installed in 1990 and has been upgraded in phases. Landfill gas extraction helps prevent migration of gas-borne contaminants, principally VOCs that could otherwise migrate to groundwater.

22. In March 2000, the Discharger prepared a Corrective Action Plan (CAP) for the landfill due to an ongoing release of VOCs to groundwater. The CAP identified three release mechanisms that may have caused the VOC impact including: migration of landfill leachate directly to groundwater; waste from the unlined units in direct contact with groundwater; and landfill gas migration and partitioning into groundwater. In its 18 September 2015 letter, the Discharger stated the CAP may not reflect current conditions; this Order requires a further site evaluation and an update to the CAP.

23. In addition to controlling migration of combustible gases, the system serves as a corrective action measure to help prevent migration of gas-borne contaminants, principally VOCs, that could otherwise migrate to groundwater. The WMU A and WMU B extraction well system includes a total of 172 extraction wells. As of this date, there are 139 active extraction wells, with 55 interior extraction wells at WMU A, 10 at WMU B, and 74 perimeter extraction wells. There are currently 37 active extraction wells at West Site, including 4 dual-completions. Extraction wells are periodically added/removed with LEA and Central Valley Water Board staff approval. These wells are operated and maintained by the Discharger.

24. Based on boring logs, the LFG extraction wells extend into the refuse to depths ranging from approximately 20 to 60 feet below the cover surface. Gas is combusted in the two operational landfill gas flares maintained by the Discharger. One is the East flare installed in 2016, and the other is the smaller West flare,

which became operational in 2019. There is also another flare next to the East flare that is disconnected. The Discharger is preparing to remove the older flare in the future. The West flare serves as a backup to the main East flare through a crossover connection at 28th and A Streets.

25. The Discharger maintains a separate landfill gas collection system for migration control purposes. The system consists of 74 extraction wells installed in a soil levee/berm along the southern fill perimeter.

26. Landfill gas extracted from the perimeter system is combined with excess landfill gas from WMU A and WMU B and combusted in one of two flares.