CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2018-XXXX

WASTE DISCHARGE REQUIREMENTS
FOR
AMADOR COUNTY
BUENA VISTA
CLASS II AND CLASS III LANDFILL POST-CLOSURE MAINTENANCE, CLASS II SURFACE IMPOUNDMENT OPERATION AND MAINTENANCE, AND CORRECTIVE ACTION
AMADOR COUNTY

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

1. Amador County (hereinafter Discharger) owns and operates the Buena Vista Landfill (Facility) about three miles south of Ione and one-half mile north of Buena Vista, in Section 7, T5N, R10E, MDB&M, as shown in Attachment A. The facility is a municipal solid waste (MSW) landfill regulated under authority given in Water Code section 13000 et seq.; California Code of Regulations, title 27 (“Title 27”), section 20005 et seq.; and 40 Code of Federal Regulations section 258 (a.k.a, “Subtitle D”) in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62. The facility was previously regulated by Waste Discharge Requirements (WDRs) Order No. R5-2011-0062.

2. These WDRs have been prepared to prescribe post-closure maintenance requirements for the Phase I, II and III landfill Waste Management Units (WMUs) and continued operation of the Class II surface impoundment WMU. In addition, these WDRs require the Discharger to continue the corrective action program to remove volatile organic compounds (VOCs) from the groundwater and to control leachate and landfill gas (LFG) migration from the Phase I landfill WMU.

3. The following documents are attached to this Order and hereby incorporated into and made a part of this Order by reference:
   a. Attachment A – Site Location Map
   b. Attachment B – Assessor Parcel Map of Landfill Area
   c. Attachment C – Site Plan and Monitoring Network
   d. Information Sheet
      April 2016 Standard Provisions and Reporting Requirements for Industrial Facilities Regulated by Title 27 (Industrial SPRRs)

4. The facility is on a 262-acre property at 6500 Buena Vista Road, Ione, California 95640. The facility includes 24 acres of closed landfill WMUs and a 1.2 acre Class II surface
impoundment, as shown in Attachment B. The existing landfill units consist of an unlined Phase I landfill WMU covering 11 acres and lined Phase II and III landfill WMUs covering 13 acres. The facility is comprised of Assessor's Parcel Numbers (APN) 12-04-040 through 12-04-046.

5. On 15 August 2017 the Discharger submitted an amended Report of Waste Discharge (ROWD) as part of the Joint Technical Document (JTD) for the landfill. The information in the ROWD/JTD has been used in revising these WDRs. The ROWD contains the applicable information required in Title 27. The ROWD/JTD and supporting documents contain information related to this revision of the WDRs including:

   - Updates to Facility's threat to water quality (TTWQ) and complexity (CPLX) rating;
   - Requirements for the surface impoundment operation and maintenance;
   - Updates to the corrective action plan, and requirements for corrective actions operations, maintenance and their performance;
   - Revisions to the detection monitoring program; and
   - Updates to the financial assurances.

6. On 15 August 2011 the Central Valley Water Board issued Order R5-2011-0062 in which the Phase I, II, and III landfill WMUs at the facility were classified as closed Class II and Class III units for the discharge of municipal solid waste. The Class II surface impoundment continues to receive leachate and LFG condensate from the landfill WMUs, and groundwater from the extraction trench. This Order continues to classify the closed Phase I landfill WMU as Class III, the closed Phase II and III landfill WMUs as Class II and the surface impoundment as a Class II unit in accordance with Title 27.

7. The existing landfill units authorized by this Order are described as follows:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Area</th>
<th>Liner/LCRS(^1) Components</th>
<th>Unit Classification &amp; Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase I landfill WMU</td>
<td>11 ac</td>
<td>Unlined and no LCRS. The final cover consists of a two-foot foundation layer, overlain by a one-foot 1x10^-6 cm/sec low hydraulic conductivity layer, and covered by a 6-inch vegetative cover</td>
<td>Class III, Filled and closed. Final cover constructed in 1995.</td>
</tr>
<tr>
<td>Phase II landfill WMU</td>
<td>6 ac</td>
<td>The liner consists of a two-foot thick layer of compacted clay, overlain by a 1-foot thick gravel blanket LCRS with inclusive perforated piping. The LCRS drains to the west-southwest. The eastern edge of the Phase II WMU consists of a near vertical</td>
<td>Class II, filled and closed. Final cover constructed in 2009</td>
</tr>
</tbody>
</table>
cut slope. This slope is lined with a scrim-reinforced, spray-on 100-mil thick liner. The backslope along the eastern end of the unit is lined with an 80-mil thick high-density polyethylene liner (HDPE) overlain by a geonet, a 10-once per square foot geotextile fabric, and a two-foot thick operations layer.

The final cover for Phases II/III consists of a minimum 2-feet thick foundation soil layer, 40-mil LLDPE geomembrane, geocomposite drainage layer (side slopes only) and a minimum 2-feet thick vegetative soil layer.

The Phase III final cover is described above.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Area</th>
<th>Liner/LCRS Components</th>
<th>Unit Classification &amp; Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase III landfill WMU</td>
<td>7 acres</td>
<td>The liner consists of one-foot of compacted clay, with a permeability of $2.0 \times 10^{-8}$ cm/sec. Overlain by a 60-mil HDPE geomembrane, a 16 ounce per square yard nonwoven geotextile, and a 1-foot thick LCRS gravel drainage layer.</td>
<td>Class II, Filled and closed. Final cover construction in 2009</td>
</tr>
<tr>
<td>Surface impoundment</td>
<td>1.2 acres (1.3 million gallons)</td>
<td>The base of the surface impoundment consists of a 2-feet low permeability soil layer ($K_s \ 1 \times 10^{-6}$ cm/sec) overlain by the LCRS which consists of a geocomposite drainage layer and gravel filled collection trench to a 1,000 gal sump. Overlying the LCRS is a geotextile and a 45-mil Hypalon 3-Ply geomembrane.</td>
<td>Class II, Operating.</td>
</tr>
</tbody>
</table>

1 LCRS – Leachate collection and removal system

8. On-site facilities at the Buena Vista Landfill include: three closed landfill WMUs, a household hazardous waste (HHW) facility, a used oil collection facility, active material
recovery facility Western Amador Recycling Facility (WARF), a Class II surface impoundment, a groundwater extraction trench, LFG control system, and a closed septage treatment facility. The closed septage treatment facility is now used for vehicle storage for the Amador County Sheriff Department. ACES Waste Services, Inc operates the WARF under a separate Solid Waste Facility Permit (SWFP). The Jackson Valley Irrigation District (JVID) is proposing to construct a water tank in the area (APN 12-04-046) at the approximate location shown on the map (Attachment B).

9. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated federal municipal solid waste (MSW) regulations under the Resource Conservation and Recovery Act (RCRA), Subtitle D. These regulations are under 40 Code of Federal Regulations section 258, and are hereafter referred to as either “Subtitle D” in reference to the RCRA federal law that required the regulations or “40 C.F.R. section 258.XX”. These regulations apply to all California Class II and Class III landfills that accept MSW. State Water Board Resolution 93-62 requires the Central Valley Water Board to implement in WDRs for MSW landfills the applicable provisions of the federal MSW regulations that are necessary to protect water quality, and in particular the containment provisions and the provisions that are either more stringent or that do not exist in Title 27.

10. This Order implements the applicable regulations for discharges of solid waste to land through Prohibitions, Specifications, Provisions, and monitoring and reporting requirements. Prohibitions, Specifications, and Provisions are listed in Sections A through H of these WDRs below, and in the Landfill SPRRs and Industrial SPRRs which are part of this Order. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) R5-2018-XXXX and in the Landfill and Industrial SPRRs. In general, requirements that are either in regulation or otherwise apply to all MSW landfills are considered to be “standard” and are therefore in the SPRRs. Any site-specific changes to a requirement in the SPRRs are included in the applicable section (A through H) of these WDRs, and the requirement in the WDRs supersedes the requirement in the SPRRs.

11. Title 27 contains regulatory standards for discharges of solid waste promulgated by the State Water Board and the California Department of Resources Recovery and Recycling (CalRecycle). In certain instances, this Order cites CalRecycle regulatory sections. Title 27, section 20012 allows the Central Valley Water Board to cite CalRecycle regulations from Title 27 where necessary to protect water quality provided it does not duplicate or conflict with actions taken by the Local Enforcement Agency in charge of implementing CalRecycle’s regulations.
WASTE CLASSIFICATION AND UNIT CLASSIFICATION

Landfill Waste Management Units

12. The Buena Vista is a closed landfill with three landfill WMUs. The Phase I landfill unit is classified as a Class III WMU, and the Phase II and III landfill units are classified as Class II WMUs in accordance with Title 27.

13. The Phase I landfill WMU was constructed in 1973 and is unlined. Eleven active dual LFG and leachate collection extraction wells were installed to remove LFG and/or leachate within waste, as a corrective action to control releases from the unit. A groundwater extraction trench was constructed to collect impacted groundwater and maintain groundwater separation to the waste at the closed Phase I landfill WMU.

14. The Phase II landfill WMU was constructed in 1990 and is lined with clay. The Phase III landfill WMU was constructed in 1994 and is lined with clay and geomembrane. While the Phase II and III landfill WMUs were constructed at different times, their LCRSs share a common sump. Thirteen active LFG collection extraction wells were installed to remove LFG within waste from the Phase II and III landfill WMUs, as part of the corrective action to the Phase I landfill WMU.

15. Leachate and LFG condensate from the Phase I, II and III landfill WMUs, and groundwater extracted from the Phase I landfill WMU groundwater extraction trench are discharged to the Class II surface impoundment.

Class II Surface Impoundment

16. The 1.2 acre Class II surface impoundment was constructed in 1992 and is lined with clay layer, overlain by a gravel/geotextile and geocomposite LCRS, and hypalon geomembrane. An evaporative spray field system was installed in 2002 to enhance the evaporation. The evaporative spray field system was further enhanced with installation of fog nozzles in 2012. The Discharger proposes to continue to discharge designated waste to the lined Class II surface impoundment unit at the facility. The designated wastes may be discharged only in accordance with Title 27.

17. Water Code section 13173 defines “Designated Waste” as either of the following:

a. Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to Health and Safety Code section 25143.

b. Nonhazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.
Designated waste can be discharged only at Class I or at Class II WMUs which comply with Title 27 and have been approved by the regional board for containment of the particular kind of waste to be discharged.

18. The following liquids are currently approved for discharge to the Class II surface impoundment:
   a. Leachate collected from the Phase II and III landfill WMU LCRSs, and the Class II surface impoundment LCRS;
   b. Landfill gas condensate collected from the Phase I, II and III landfill WMUs;
   c. Leachate collected from the dual landfill leachate/gas extraction system on the Phase I landfill WMU;
   d. Groundwater extracted from the groundwater extraction trench; and
   e. Leachate collected from seeps identified on Phase I landfill WMU.

No liquids generated offsite will be discharged into the Class II surface impoundment.

19. The Discharger provided analytical data in the “First Semiannual 2017 Monitoring and Corrective Action Update” for the Class II surface impoundment liquid collected on 17 February 2017, which is summarized in the table below. The table also includes the California primary maximum contaminant level (primary MCL), the lowest applicable water quality objective (WQO) for groundwater for protection of drinking water beneficial use for domestic and municipal supply wells, and the background groundwater quality at the site.

<table>
<thead>
<tr>
<th>Constituent</th>
<th>Units</th>
<th>Concentration</th>
<th>CA Primary MCL</th>
<th>Lowest Applicable WQO</th>
<th>Background Groundwater Data³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bicarbonate</td>
<td>mg/L</td>
<td>210</td>
<td></td>
<td></td>
<td>0.4</td>
</tr>
<tr>
<td>Calcium</td>
<td>mg/L</td>
<td>46</td>
<td></td>
<td></td>
<td>1.1 - 1.5</td>
</tr>
<tr>
<td>Carbonate</td>
<td>mg/L</td>
<td>27</td>
<td></td>
<td></td>
<td>ND</td>
</tr>
<tr>
<td>Chloride</td>
<td>mg/L</td>
<td>1,600</td>
<td></td>
<td>250b</td>
<td>4.1 – 16.7</td>
</tr>
<tr>
<td>Magnesium</td>
<td>mg/L</td>
<td>81</td>
<td></td>
<td></td>
<td>1.1 – 1.5</td>
</tr>
<tr>
<td>Nitrate as N</td>
<td>mg/L</td>
<td>0.29 J</td>
<td>10</td>
<td>CA Primary MCL</td>
<td>0 – 0.3</td>
</tr>
<tr>
<td>Potassium</td>
<td>mg/L</td>
<td>960</td>
<td></td>
<td></td>
<td>1.2</td>
</tr>
<tr>
<td>Sodium</td>
<td>mg/L</td>
<td>410</td>
<td></td>
<td>20c</td>
<td>3.7 – 10.1</td>
</tr>
<tr>
<td>Sulfate</td>
<td>mg/L</td>
<td>810</td>
<td></td>
<td>250b</td>
<td>15.4 – 20.9</td>
</tr>
<tr>
<td>Total alkalinity</td>
<td>mg/L</td>
<td>230</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TDS</td>
<td>mg/L</td>
<td>4,000</td>
<td></td>
<td>50b</td>
<td>100.9 – 117.3</td>
</tr>
<tr>
<td>Total Organic</td>
<td>mg/L</td>
<td>82</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dissolved Metals</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum</td>
<td>µg/L</td>
<td>28 J</td>
<td>1,000</td>
<td>50d</td>
<td></td>
</tr>
<tr>
<td>Arsenic</td>
<td>µg/L</td>
<td>17</td>
<td>10</td>
<td>0.02a</td>
<td></td>
</tr>
<tr>
<td>Barium</td>
<td>µg/L</td>
<td>44</td>
<td>1,000</td>
<td>700f</td>
<td></td>
</tr>
<tr>
<td>Chromium</td>
<td>µg/L</td>
<td>32</td>
<td>50</td>
<td>CA Primary MCL</td>
<td></td>
</tr>
</tbody>
</table>

³ Background groundwater data is based on California primary maximum contaminant level (MCL) and the lowest applicable California water quality objective (WQO) for domestic and municipal supply wells.
Constituent | Units | Concentration | CA Primary MCL | Lowest Applicable WQO | Background Groundwater Data
--- | --- | --- | --- | --- | ---
Cobalt | µg/L | 2.8 | - | - | -
Copper | µg/L | 8.2 | 1,300 | 1,000<sup>b</sup> | -
Cyanide | µg/L | 4 J | 150 | 4.2<sup>g</sup> | -
Iron | µg/L | 410 | - | 300<sup>b</sup> | -
Manganese | µg/L | 240 | - | 50<sup>b</sup> | -
Nickel | µg/L | 6.2 | 100 | CA Primary MCL | -
Vanadium | µg/L | 19 | - | 63<sup>g</sup> | -
Organochlorine Pesticides
delta-BHC | µg/L | 0.053 | - | 500<sup>h</sup> | -
gamma-BHC | µg/L | 0.047 | 0.2 | 0.032<sup>i</sup> | -
(Lindane)
Organophosphorous Pesticides
Diazinon | µg/L | 0.099 J | - | 1<sup>f</sup> | -
SVOCs
Di-n-butyl phthlate | µg/L | 2.3 J | - | - | -

Notes:
mg/L – milligrams per liter
µg/L – micrograms per liter
ND – Non-detect
TDS – Total Dissolved Solids
J – Total Dissolved Solids indicates that result is an estimated value below the laboratory Practical Quantitation Limit (Reporting Limit – RL) and above the Method Detection Limit (MDL)

b. California Secondary MCL
c. USEPA Health Advisory – Non-cancer Health Effects for Drinking Water
e. USEPA Integrated Risk Information System (IRIS) – One-in-a-Million Incremental Cancer Risk Estimates for Drinking Water
f. USEPA Health Advisory – Drinking Water for Non-cancer Health Effects
g. USEPA IRIS Reference Dose (RfD) as a drinking water level - Non-cancer Health Effects for Drinking Water
h. National Academy of Sciences Health Advisory - Drinking Water for Non-cancer Health Effects
i. Cal/EPA Cancer Potency Factor as a drinking water level - One-in-a-Million Incremental Cancer Risk Estimates for Drinking Water

20. The Class II surface impoundment analytical data shows that the concentrations of some constituents including, but not limited to arsenic, chloride, sulfate, TDS, Iron, and gamma-BHC (Lindane) exceed the primary MCL or lowest applicable WQO. The data indicate that the discharge consists of or contains pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state. Therefore, the discharge is a ‘designated waste’ and as such must be discharged to a Class II WMU as required by Title 27.

SITE DESCRIPTION

21. The site is situated at the base of the Sierra Nevada Foothills along the eastern margin of the San Joaquin Valley with elevations ranging from 370 to 400 feet above mean sea level (MSL).
22. Land within 1 mile east of the facility is used for firework manufacturing and testing, agriculture and open vegetated space. Land within 1 mile north and 1 mile west of the facility consists of open vegetated space and areas that have been mined for clay. There is also a mobile home park near the southwest corner of the facility. Land uses within 1 mile south of the facility consist of a small commercial establishment, agriculture, and vegetated open space. In addition, there is a stone quarry southeast of the facility.

23. There are nine municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the facility.

24. There are no known Holocene faults within 1,000 feet of the facility. The closest fault is the Bear Mountains Fault Zone that is considered part of the Foothills Fault System. Based on a site-specific seismic analysis completed for the Phase II and III landfill WMUs closure, the controlling maximum credible earthquake (MCE) for the site is a moment magnitude 6.5 event along the Foothills fault system at a closest rupture distance of 6 miles from the site. It is estimated that a MCE event would produce a peak ground acceleration of 0.43 g at the site.

25. The measured hydraulic conductivity of the native soils underlying the landfill units ranges between 2x10^{-8} and 1.9x10^{-3} centimeters per second (cm/s). Site geology based on monitoring well boring logs conforms to the upper and lower units of the Ione Formation and consists of claystone, siltstone, sandstone and small lignite beds exhibiting sulfides and high sulfur content.

26. The facility receives an average of 21.6 inches of precipitation per year as measured at the Camp Pardee Station (approximately five miles southeast of the facility). The mean pan evaporation is 60 inches per year as measured at the Camp Pardee Station.

27. The 100-year, 24-hour precipitation event for the facility is estimated to be 4.66 inches, based on National Oceanic and Atmospheric Administration (NOAA), Atlas 14 Point Precipitation Frequency Estimates for California, Atlas 14, Volume 6, Version 2.

28. The 1,000-year, 24-hour precipitation event for the facility is estimated to be 6.16 inches, based on NOAA, Atlas 14 Point Precipitation Frequency Estimates for California, Atlas 14, Volume 6, Version 2.

29. The waste management facility is not within a 100-year flood plain based on the Federal Emergency Management Agency’s (FEMA) Flood Insurance Rate Map, Community-Panel Number 39 and 44.

30. A storm water sedimentation basin (hereafter runoff holding pond) is located south of the landfill as shown on Attachment C. The runoff holding pond detains storm water for sedimentation control during the rainy season and is normally low in water level during the summer months. Overflow from the runoff holding pond drains to Jackson Creek.
SURFACE WATER AND GROUNDWATER CONDITIONS


32. Surface water drainage flows to two unnamed ephemeral streams to the west and south of the Facility. The majority of surface water drainage is diverted to the runoff holding pond near the southern property boundary. This runoff holding pond is unlined and has a total capacity of approximately nine acre-feet (2.93 million gallons). Overflow from the runoff holding pond drains to Jackson Creek, approximately 3,500 feet south of the property boundary. Jackson Creek is tributary to Dry Creek which enters Delta Waterways Boundary prior to discharge to the Mokelumne River, per Appendix 42 of Basin Plan.

33. The designated beneficial uses of these surface waters, as specified in the Basin Plan, are municipal and domestic supply (MUN), agricultural supply (AGR), industrial service supply (IND), industrial process supply (PROC), water contact recreation (REC-1), non-contact water recreation (REC-2), warm fresh water habitat (WARM), cold freshwater habitat (COLD), migration of aquatic organisms (MIGR); warm spawning (SPWN), wildlife habitat (WILD), and navigation (NAV).

34. The first encountered groundwater ranges from about 24 feet to 34 feet below the native ground surface. Groundwater elevations range from about 383 feet mean sea level (MSL) to 335 feet MSL. The groundwater is semi-confined to confined within the Ione Formation with local perched zone. Groundwater elevations fluctuate seasonally as much as 13 feet within the Facility groundwater monitoring wells.

35. Monitoring data indicate background groundwater quality for first encountered groundwater (as measured at MW-14) has electrical conductivity (EC) ranging between 59.2 and 76.1 micromhos/cm, with total dissolved solids (TDS) ranging between 80 and 140 mg/L.

36. The direction of groundwater flow is generally toward the west-southwest with a groundwater mound below the eastern edge of the Phase I landfill WMU. The groundwater extraction trench located along the northwestern edge of the Phase I landfill WMU creating a groundwater cone of depression near the sump. The estimated average groundwater gradient is approximately 0.031 feet per foot. The estimated average groundwater velocity is 0.76 feet per year.

37. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply (MUN), agricultural supply (ARG), industrial service supply (IND), and industrial process supply (PRO).
GROUNDBWATER, UNSATURATED ZONE AND SURFACE WATER MONITORING

38. The existing groundwater monitoring network for the landfill units consists of background monitoring wells (MW-9 and MW-14), detection monitoring wells and corrective action monitoring wells. The groundwater extraction trench sump (Sump L-1) is also part of the groundwater corrective action monitoring system. The casing and screen elevations of groundwater monitoring wells are provided in the following table. See Attachment C for well locations.

<table>
<thead>
<tr>
<th>Well ID</th>
<th>Top of Casing Elevation*</th>
<th>Top of Screen Elevation*</th>
<th>Well Type</th>
<th>WMUs Being Monitored</th>
<th>Groundwater Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sump L-1</td>
<td>371.04</td>
<td>341.04</td>
<td>Corrective Action</td>
<td>Phase I</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-1</td>
<td>423.45</td>
<td>373.45</td>
<td>Detection</td>
<td>Phase I</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-3A</td>
<td>368.72</td>
<td>349.22</td>
<td>Corrective Action</td>
<td>Phase I</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-3B</td>
<td>368.97</td>
<td>320.97</td>
<td>Corrective Action</td>
<td>Phase I</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-4A</td>
<td>377.82</td>
<td>343.82</td>
<td>Detection</td>
<td>Phase II &amp; III</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-5</td>
<td>364.38</td>
<td>309.38</td>
<td>Detection</td>
<td>Phase II &amp; III</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-7</td>
<td>362.70</td>
<td>307.7</td>
<td>Corrective Action</td>
<td>Phase I</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-9</td>
<td>377.78</td>
<td>322.78</td>
<td>Background</td>
<td>All WMUs</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-10</td>
<td>373.15</td>
<td>358.15</td>
<td>Corrective Action</td>
<td>Phase I</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-11</td>
<td>390.11</td>
<td>366.11</td>
<td>Detection</td>
<td>Phase I</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-13</td>
<td>397.13</td>
<td>364.13</td>
<td>Detection</td>
<td>Phase I</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-14</td>
<td>430.61</td>
<td>365.61</td>
<td>Background</td>
<td>All WMUs</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-15</td>
<td>407.67</td>
<td>352.67</td>
<td>Detection</td>
<td>Phase II &amp; III</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-16</td>
<td>378.21</td>
<td>338.21</td>
<td>Detection</td>
<td>Phase II &amp; III</td>
<td>Upper Aquifer</td>
</tr>
<tr>
<td>MW-20</td>
<td>434.21</td>
<td>404.21</td>
<td>Other</td>
<td></td>
<td>Perched Zone</td>
</tr>
<tr>
<td>MW-21</td>
<td>424.36</td>
<td>386.36</td>
<td>Detection</td>
<td>Surface Impoundment</td>
<td>Upper Aquifer</td>
</tr>
</tbody>
</table>

* Elevations expressed as feet above MSL

39. The Phase II and III landfill WMUs share a common detection monitoring system.

40. At the time this Order was adopted, the Discharger’s detection monitoring program for groundwater at the landfill satisfied the requirements contained in Title 27. The detection monitoring network may not be performing per Title 27 requirements (Findings 53 and 54). Additional downgradient monitoring wells may be required if analytical data indicate
a release in the existing downgradient monitoring wells during the subsequent monitoring events.

41. The existing unsaturated zone monitoring system for the landfill consists of six suction lysimeters for the Phase I landfill WMU (VZ-1) and Phase II and III landfill WMUs (VZ-4, VZ-5, VZ-9, VZ-10 and VZ-12) and two lysimeters installed under the Class II surface impoundment (PZ-1 and PZ-2). The lysimeters shall be tested semiannually to determine if liquid exists, and if liquid can be recovered and sampled.

42. Lysimeters VZ-2 and VZ-3 installed under the Phase I landfill WMU were damaged or not accessible for unsaturated zone soil pore liquid monitoring. Since these lysimeters are no longer operational, the gas probes GP-6 and GP-10 are used to monitor the unsaturated zone in northern part of the Phase I landfill WMU.

43. Gas probes GP-1 through GP-11 are part of the unsaturated zone monitoring, as specified in the MRP.

44. The Discharger’s current unsaturated zone monitoring system satisfies the Title 27 requirements.

45. The discharger’s surface water monitoring system complies with the applicable provisions of §20415 and §20420 of Title 27 and consists of three sampling locations which are shown in Attachment C:

<table>
<thead>
<tr>
<th>Sampling Point</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>S-1</td>
<td>Downstream of the Phase I landfill WMU located west of the Phase I landfill WMU at east side of the Buena Vista Road culvert</td>
</tr>
<tr>
<td>S-2</td>
<td>Downstream of the Phase II and III landfill WMU located south of the Phase III at the entrance to the runoff pond</td>
</tr>
<tr>
<td>S-3</td>
<td>Background sample located in the intermittent stream bed in the northeast part of the landfill property</td>
</tr>
</tbody>
</table>

46. VOCs are often detected in a release from a MSW landfill and are often associated with releases of LFG rather than leachate. Since volatile organic compounds are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a landfill unit. Title 27, sections 20415(e)(8) and (9) allows the use of a non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a landfill unit in accordance with Title 27, sections 20415(b)(1)(B)2.-4. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.
47. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27, section 20080(a)(1). Water Code section 13360(a)(1) allows the Central Valley Water Board to specify requirements to protect groundwater or surface waters from leakage from a solid waste site, which includes a method to provide the best assurance of determining the earliest possible detection of a release.

48. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a landfill unit, the SPRRs specify a non-statistical method for the evaluation of monitoring data for non-naturally occurring compounds. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a landfill unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL) [a.k.a, laboratory reporting limit (RL)], indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing must be conducted to determine whether there has been a release from the landfill unit or the detection was a false detection. The detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

49. For a naturally occurring constituent of concern (COC), the Title 27 requires concentration limits for each COC be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
- b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).

50. The Discharger submitted a 15 August 2017 Water Quality Protection Standard (WQPS) report proposing statistical data analysis methods to calculate concentration limits for each naturally occurring monitored constituent in accordance with Title 27. The WQPS report proposes to use Intrawell data analysis to calculate concentration limits for the monitored constituents. The WQPS and approved data evaluation methods are included in MRP R5-2018-XXXX.

GROUNDWATER DEGRADATION AND CORRECTIVE ACTION

51. The groundwater impacts from the Phase I landfill WMU leachate were first discovered in 1987. The VOCs and inorganic compounds were detected approximately 600-feet downgradient of the landfill. However, currently the VOCs are not known to be present downgradient of monitoring well MW-7. The Discharger installed the groundwater extraction trench downgradient of the northwestern portion of the Phase I landfill WMU in
1992. In 2003, the dual leachate and LFG extraction system was installed into the closed Phase I landfill WMU after determining that LFG was contributing to the groundwater impacts in addition to leachate.

52. During the 2017 first semiannual monitoring event, VOCs were detected in the groundwater extraction trench, groundwater monitoring wells, and unsaturated zone monitoring lysimeters. Specifically, VOCs were detected in the

- Groundwater extraction trench Sump L-1,
- Groundwater well MW-3B located downgradient of the Phase I landfill WMU Unit,
- Groundwater wells MW-1, MW-11, and MW-13 located sidegradient to Phase I landfill WMU,
- Groundwater well MW-15 located sidegradient to the Phase II and III landfill WMUs, and
- Lysimeters VZ-5 and VZ-10 located below the Phase II and III landfill WMUs.

The table below summarizes the VOC detections during the 2017 first semiannual monitoring event.
<table>
<thead>
<tr>
<th>Constituent</th>
<th>L-1</th>
<th>MW-1</th>
<th>MW-11</th>
<th>MW-13</th>
<th>MW-15</th>
<th>MW-3B</th>
<th>VZ-5</th>
<th>VZ-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,1-Dichloroethane</td>
<td>0.26</td>
<td>0.61</td>
<td>6.2</td>
<td>0.68</td>
<td></td>
<td>2.4</td>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>1,2-Dichloroethane</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,2-Dichloropropane</td>
<td></td>
<td></td>
<td>0.3</td>
<td></td>
<td></td>
<td>0.3 J</td>
<td></td>
<td>0.2 J</td>
</tr>
<tr>
<td>1,4-Dichlorobenzene</td>
<td>1.4</td>
<td>2.5*</td>
<td>0.7</td>
<td>0.2 J</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benzene</td>
<td>1.1</td>
<td>2.9*</td>
<td>3.8*</td>
<td></td>
<td>0.5</td>
<td>0.36 J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bromochloromethane</td>
<td></td>
<td></td>
<td></td>
<td>0.74</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Carbon disulfide</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.52</td>
<td>J</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorobenzene</td>
<td>0.67</td>
<td>4.4*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chloromethane</td>
<td></td>
<td></td>
<td></td>
<td>0.42</td>
<td>J</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cis-1,2-Dichloroethylene</td>
<td>0.38</td>
<td>0.67*</td>
<td>1.1*</td>
<td>0.46</td>
<td>J</td>
<td>1.2</td>
<td>0.72</td>
<td></td>
</tr>
<tr>
<td>Dichlorodifluoromethane</td>
<td>0.24</td>
<td>12</td>
<td>15</td>
<td>6.2</td>
<td>0.56</td>
<td>1.1</td>
<td>0.32 J</td>
<td></td>
</tr>
<tr>
<td>Dichlorofluoromethane **</td>
<td></td>
<td>24</td>
<td></td>
<td></td>
<td></td>
<td>2.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diisopropyl ether</td>
<td></td>
<td></td>
<td>0.62</td>
<td></td>
<td></td>
<td></td>
<td>0.16 J</td>
<td></td>
</tr>
<tr>
<td>Ethylbenzene</td>
<td>0.99</td>
<td>0.16 J</td>
<td>0.16</td>
<td></td>
<td>0.16 J</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Hexane</td>
<td></td>
<td></td>
<td></td>
<td>0.85</td>
<td>J</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Methylene chloride</td>
<td>9.1*</td>
<td>25</td>
<td>8.9</td>
<td></td>
<td>9.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>t-Butyl alcohol</td>
<td></td>
<td></td>
<td></td>
<td>25</td>
<td></td>
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<td></td>
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<tr>
<td>Tetrachloroethylene</td>
<td>0.33</td>
<td>1.9</td>
<td>0.59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toluene</td>
<td>0.41</td>
<td>0.12 J</td>
<td>0.84</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trichloroethylene</td>
<td>0.37</td>
<td>2.0</td>
<td>0.37 J</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trichlorofluoromethane</td>
<td>1.2</td>
<td>0.36 J</td>
<td>0.39 J</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vinyl chloride</td>
<td>0.16</td>
<td>0.68*</td>
<td>1.5*</td>
<td>0.27</td>
<td>J</td>
<td>0.22 J</td>
<td>0.24 J</td>
<td></td>
</tr>
<tr>
<td>Xylene</td>
<td>0.99</td>
<td>1.5</td>
<td></td>
<td>0.76</td>
<td>J</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diethyl ether **</td>
<td>11</td>
<td>6.4</td>
<td>20</td>
<td>5.3</td>
<td>2.5</td>
<td>0.38</td>
<td>20</td>
<td>1.2</td>
</tr>
<tr>
<td>Dimethyl ether **</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Isobutane **</td>
<td>1.1</td>
<td>2.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tetrahydrofuran **</td>
<td>20</td>
<td>10</td>
<td>9.2</td>
<td>6.9</td>
<td>11</td>
<td>180</td>
<td>53</td>
<td></td>
</tr>
</tbody>
</table>

All concentrations are in µg/L

“J” indicates that result is an estimated value below the laboratory Practical Quantitation Limit (Reporting Limit – RL) and above the Method Detection Limit (MDL)

“*” indicates historically highest concentration

“**” indicates tentatively identified compound (TIC)
53. VOCs show increasing trends in MW-1 and MW-11, which are located to the north and the south of the Phase I landfill WMU. Furthermore, historically high VOC concentrations were detected during the first semiannual 2017 monitoring event for 1,4-dichlorobenzene, benzene, chlorobenzene, cis-1,2-Dichloroethylene, methylene chloride and vinyl chloride in MW-1; and benzene, cis-1,2-Dichloroethylene and vinyl chloride in MW-11. The Discharger shall evaluate the groundwater monitoring data to determine the cause of increasing VOCs and/or inorganic concentrations in the Phase I landfill WMU groundwater, as part of Groundwater and Unsaturated Zone Monitoring Evaluation Report as detailed in Provision H.4.C.

54. During the first semiannual 2017 sampling event, VOCs were detected at higher concentrations than previous sampling events at lysimeters VZ-5 and VZ-10; specifically, benzene, carbon disulfide and chloromethane at VZ-5 and 1,1-Dichloroethane, benzene and cis-1,2-Dichloroethylene at VZ-10. Additionally, VOCs diethyl ether and tetrahydrofuran were identified in the monitoring well MW-15 groundwater sample, for the first time, during first semiannual 2017 sampling event and dichlorodifluoromethane (CFC-12) groundwater concentration in monitoring well MW-15 also shows increasing trend. Concentrations of inorganic constituents in groundwater monitoring wells downgradient of the Phase II and III landfill WMUs exceeded concentration limits. During the first semiannual 2017 sampling event, concentration limits were exceeded for TDS, chloride, sulfate, calcium, magnesium, potassium and sodium in MW-5 and chloride in MW-16. Furthermore, upward trends of TDS, chloride and calcium concentrations in MW-16 have been observed since 2010. Currently, the cause of the increases in VOC and inorganic concentrations in the groundwater monitoring wells and VOCs high concentrations in the lysimeters in the vicinity of the Phase II and III landfill WMUs are unknown. The Discharger shall evaluate the groundwater and unsaturated zone monitoring data to determine the cause of increasing VOCs and/or inorganic concentrations in the Phase II and III landfill WMUs groundwater and unsaturated zone, as part of Groundwater and Unsaturated Zone Monitoring Evaluation Report as detailed in Provision H.4.C.

55. Turbidity has been observed at elevated levels in monitoring wells MW-3A, MW-4A, MW-7, MW-11, MW-16 and MW-20 indicating that the wells may not be performing to the original design specifications. Operational maintenance such as redevelopment may be required for these wells to maintain compliance with Landfill SPRR I.20. In the next semiannual monitoring report, the Discharger shall evaluate the performance of these wells as detailed in Provision H.4.E.

56. Four corrective action measures are utilized at the facility to control and reduce the release of VOCs from the Phase I landfill WMU to groundwater, as summarized below:

a. Operation of a groundwater extraction trench down-gradient from the Phase I landfill WMU to collect VOC impacted groundwater;

b. Extraction of leachate and LFG from eleven leachate and/or LFG extraction wells in Phase I landfill WMU to control the migration of leachate and LFG;

c. Maintenance of landfill cover to limit infiltration into the landfill; and,
d. Operation and maintenance of leachate collection trenches on the Phase I landfill WMU to remove leachate that seeps out of the landfill cover.

**Groundwater Extraction Trench**

57. In March 1987, pursuant to AB 2535, the Discharger submitted its Solid Waste Assessment Test (SWAT) report for the site that indicated that leachate from the closed Phase I landfill WMU had impacted groundwater. In November 1992, the Discharger installed a groundwater extraction trench, downgradient of the Phase I landfill WMU (West of the Unit) and in 2002 the sump (L-1) was deepened to improve performance. The trench is approximately 350 feet long and was constructed to collect contaminated water from the uppermost water bearing zone. The trench is keyed into low permeable sediments and is two-feet wide with a depth ranging from 17 to 34 feet below ground surface (bgs). A sump was installed approximately 110-feet from the south end of the trench. The trench is filled with ¾-inch washed gravel to a depth of 10-feet bgs. A geotextile layer overlays the gravel. From the geotextile layer to the ground surface, native soil was used for backfill.

58. The extraction trench removes contaminated groundwater down-gradient of the Phase I landfill WMU and acts as a hydraulic barrier to offsite migration. In 2016 the extraction trench removed over 757,890 gallons of contaminated groundwater. Operation of the extraction trench has created a cone of depression (groundwater sink), drawing groundwater toward the trench.

59. Historically, total VOCs concentrations have been detected at much lower concentrations downgradient of the groundwater extraction trench indicating that the groundwater extraction trench captures a majority of the VOC migration from the Phase I landfill WMU release. During the first semiannual monitoring event, total VOC concentrations in the groundwater extraction trench Sump L-1 and monitoring well MW-3B downgradient of the extraction trench were 35.21 ug/L and 1.48 ug/L, respectively, while total VOCs in monitoring wells MW-1, MW-11, and MW-13 directly upgradient of the trench were 53.25 ug/L, 120.12 ug/L and 30.26 ug/L, respectively.

60. The Discharger notified the Central Valley Water Board on 28 February 2017 that the groundwater extraction from Sump L-1 was ceased until a temporary storage tank was delivered to the facility because the Class II surface impoundment reached its capacity during the excessive precipitation event. The groundwater extraction did not occur between February and March 2017. Subsequently, during the first quarter 2017 the groundwater rose higher into the Phase I landfill WMU and concentrations of chloride increased above the concentration limit in downgradient monitoring well MW-3A. The Discharger shall evaluate the impacts of not running the groundwater extraction system in the second semiannual and annual 2018 report as detailed in Provision H.4.D. Additionally, the Discharger shall submit an updated Class II surface impoundment Operation Plan to prepare a contingency plan to dispose excess liquid when the Class II surface impoundment reaches its capacity without stopping the corrective action measures as detailed in Provision H.4.I.
Landfill Gas and Leachate Extraction System

61. The Discharger's January 1995 Closure Plan recommended that an active LFG extraction system be installed in response to the release of volatile organic vapors documented in the March 1987 SWAT report. In the 5 March 2002 amended ROWD, the Discharger presented the design for a LFG extraction system as a corrective action measure associated with the detected release of volatile organic vapors in MW1, MW10 and MW11.

62. Eleven dual leachate/LFG extraction wells were put into service on 1 August 2003 within the Phase I landfill WMU. Extracted LFG is discharged to a candle stick flare at the LFG control system for disposal, while leachate and gas condensate is discharged to the Class II surface impoundment. The LFG control system consists of gas pipes, two blowers, one candle stick flare and power distribution and control panel.

63. Four gas probes GP-8, GP-9, GP-10, GP-11S and GP-11D were installed to monitor the effectiveness of the LFG extraction system in the Phase 1 landfill WMU. During 2017, the LFG extraction system was adjusted to address elevated levels of methane observed in the interior gas probe GP-9 and the methane concentration ranged from 0 to 3.8 percent by volume from January to June 2017. Increased VOC concentrations were observed in MW-1 (Finding 53) which is east of GP-9, although stable VOC concentrations trends were observed in MW-13 which is adjacent to GP-9. It is unclear if the increase in VOC concentrations are related to the previously detected elevated levels of methane nearby. VOCs have not been historically evaluated in the landfill gas probes. As specified in MRP-R5-2018-XXXX, when methane is detected above 1ppm VOCs will be analyzed to evaluate potential impacts to groundwater from landfill gas migration.

64. The height of the leachate column within the dual leachate and LFG extraction wells in the Phase I landfill WMU is recorded monthly. During the first semiannual 2017 monitoring event, the Discharger reported leachate depths in the Phase I landfill WMU ranging from 1.95 feet to 50.75 feet. Furthermore, leachate in most of the extraction wells was recorded at more than 20 feet deep in March 2017. The amount of leachate reported by the Discharger in the extraction wells indicates that the Phase I landfill WMU dual leachate and LFG extraction wells are not adequately lowering leachate elevations in the Phase I landfill WMU to control the existing leachate release to groundwater. As detailed in Corrective Action Specification D.3, the Discharger shall operate the dual leachate and LFG extraction wells to maintain the leachate height to 12 inches from bottom of the extraction wells, unless the Discharger demonstrates that it is not feasible to maintain less than 12 inches from bottom of the extraction wells.

Landfill Covers

65. The landfill cover was installed in 1995 on the Phase I landfill WMU and brought up to Title 27 standards in 2002. The Discharger maintains the cover system as part of normal landfill operations and as a corrective action measure to limit the infiltration into the Phase I landfill WMU to assist controlling the existing leachate release.
On 11 January 2011, the Discharger notified Central Valley Water Board staff that after a series of rain storms, a pickup truck got stuck on the saturated Phase II and III landfill WMUs soil cover. Successive efforts to recover the truck caused extensive tire ruts in the cover's vegetative layer to a depth of 2-feet. The landfill cover was repaired and an electric leak location survey was performed to check that there was no damage to the integrity of the HDPE geomembrane following the construction repair activities. The Discharger installed physical barriers to prevent vehicles from driving on the landfill surface.

Cracks on the landfill cover surface were observed during a site inspection by Central Valley Water Board staff on 25 September 2017. The Discharger reported in the “First Semiannual 2017 Monitoring Report and Corrective Action Update” report that cracks in the landfill WMU cover and low areas were filled, vegetation was reestablished to minimize erosion and minimize infiltration into landfill and partial cover maintenance was completed in past years. These cracks indicate that infiltration through the landfill cover could be contributing to continued seeps observed on the Phase I landfill WMU cover (Findings 68 to 71) and high leachate column observed at the dual leachate and LFG extraction wells during March 2017 (Finding 64). The Discharger shall evaluate the Phase I landfill WMU cover to determine if the landfill cover is performing in compliance with Title 27 to limit infiltration as detailed in Provisions H.4.F.

Leachate Seep Collection Trenches

The current leachate seep collection system on the southern portion of Phase I landfill WMU consists of nine leachate seep collection trenches (LT-1 to LT-9) with one sump at LT-9 as shown on Attachment C. Leachate typically drains into the Phase I landfill WMU or is collected from LT-9 and discharged to the Class II surface impoundment or trucked offsite to a disposal facility.

The first leachate seep was discovered in during the winter of 2010/2011. The Discharger installed groundwater/leachate extraction wells within the Phase I landfill WMU and the solution was not effective in capturing the seep. In February 2012, three French drain type trenches were installed by digging through the confining layer so that perched liquid can drain back into the waste mass and be collected through the existing leachate collection and removal system. The trenches were dug to depth of 6 to 8-feet and 40-feet long, lined with filter fabric and backfilled with drain rock and capped with 2-feet of native clay materials. The buried waste material excavated from the landfill during excavation was disposed in compliance with the Local Enforcement Agency’s (LEA’s) recommendation.

Six additional trenches were constructed between September 2012 and June 2017 to address additional seeps identified on the southern portion of Phase I landfill WMU. The trenches were constructed to sizes appropriate for each seep using similar construction methods as detailed in Finding 69. The most recent seep LT-9 was also constructed with a sump to remove leachate and discharge it to the Class II surface impoundment. These
WASTES DISCHARGE REQUIREMENTS ORDER R5-2018-XXXX
AMADOR COUNTY
BUENA VISTA LANDFILL
AMADOR COUNTY

WDRs do not allow leachate to build up within the LT-9 sump more than 12 inches. MRP R5-2018-XXXX requires semi-annual sampling of the LT-9 sump leachate.

71. The formation of numerous leachate seeps on the Phase I landfill WMU indicates that the Phase I landfill WMU is not performing as designed to contain leachate within the WMU. The Discharger shall evaluate the performance of the Phase I landfill WMU to determine the cause of the leachate seeps along the southern boundary and evaluate the effectiveness of the leachate seep corrective action system as detailed in Provision H.4.G

WASTE MANAGEMENT UNIT DESIGN

Landfill Waste Management Units

72. The closed Phase I landfill WMU is an unlined Class III landfill consisting of eight individual cells covering 16 acres that were filled from 1973 to 1991. The Phase I landfill WMU was operated without a vadose monitoring system or a LCRS. This unit was filled by the trench and fill method, with cell dimensions approximately 300 by 100 and extending 25-feet below original ground surface. Currently, lysimeter VZ-1 remains operational.

73. The closed Phase I landfill WMU was constructed prior to the adoption of MSW landfill regulations that required groundwater separation from bottom of waste to the highest anticipated elevation of underlying groundwater. At times the groundwater encounters waste within the Phase I landfill WMU, and consequently, a leachate release was discovered in 1987. The Discharger operates and maintains a groundwater extraction trench as a corrective action measure to control the release, as detailed in Finding 58. No groundwater separation is required for the Phase I landfill WMU because it was constructed before the groundwater separation regulations were adopted. The groundwater extraction trench has been established as the corrective action measure to control the leachate release.

74. The closed 6 acre Phase II landfill WMU accepted waste from 1990 to 2004 has been designated and operated as a Class II landfill. The base has a 2-feet thick layer of compacted clay, overlain by a 12-inch thick blanket type gravel LCRS, with inclusive perforated piping for leachate collection. The eastern edge of the WMU consists of a near vertical cut slope lined with a scrim-reinforced, spray-on 100 mil thick liner. The backslope along the eastern end of the WMU is lined with an 80-mil thick high-density polyethylene (HDPE), a HDPE geonet, filter fabric and a two-foot thick soil operation layer. The deepest depth in the WMU is 25-feet below the natural ground surface. Currently lysimeters VZ-4 and VZ-5 installed under the compacted clay liner remain operational.

75. The closed 7 acre Phase III landfill WMU accepted waste from 1994 to 2004 has been designated and operated as a Class II landfill. The Phase II and III landfill WMUs side slope synthetic liners were tied-in so that the panels overlapped in a shingled manner.
The base has a 2-feet thick compacted clay liner of not less than $1 \times 10^{-6}$ cm/sec hydraulic conductivity on the floor and slope, a 60 mil HDPE geomembrane was installed in direct contact with the clay liner, overlain by a 12-inch thick blanket type gravel LCRS. A geocomposite drain layer was placed above the HDPE liner on the sloped areas. The slope sections were overlain by a nonwoven geotextile filter layer and then by a 12-inch operations layer. Currently, lysimeters VZ-9, VZ-10 and VZ-12 installed under the compacted clay liner remain operational.

76. While the Phase II and III landfill WMUs were constructed at different times, their LCRS share a common sump. The Phase II landfill WMU system consists of a 1-foot thick blanket of gravel LCRS with inclusive perforated piping for leachate collection and three lateral trunk lines. The Phase III landfill WMU consists of a 1-foot, 1.2 cm/sec gravel drainage layer with inclusive perforated piping with four lateral trunk lines sandwiched between nonwoven geotextile. The volume of the combined LCRS system for the Phase II and III landfill WMUs, assuming a 25 percent effective porosity and a one-foot uniform gravel layer, would be approximately 1,059,000 million gallons.

77. The Phase II and III landfill WMUs were constructed with 5 feet of separation from bottom of waste to the underlying groundwater and are required to maintain 5 feet of separation as detailed in the Landfill SPRR Standard Facility Specification E.1.

78. On 14 June 2011, a Notice of Closure of Landfill Site was recorded by the County of Amador noting to any potential purchaser of APNs 12-04-041 through 12-04-045 that:
   a. The parcel has been used for disposal of wastes.
   b. Land use options for the parcel are restricted in accordance with the Closure and Post-closure Plan for the Buena Vista Landfill dated May 2002.
   c. The closure and post-closure plans for the Buena Vista Landfill are maintained and can be viewed at the Waste Management Department, Community Development Agency, 810 Court Street, Jackson, California 95642.

Class II Surface Impoundment

79. The 1.2 acre Class II surface impoundment was constructed in 1992 with 1.3 million gallon capacity at 30-inches of freeboard. The base consists of a 2-feet thick layer of compacted clay, overlain by a geomembrane. The LCRS consists of a geocomposite drainage layer and gravel filled collection trench that discharges to a 1,000 gallon sump. Overlying the LCRS is the geomembrane composed of 45 mil Hypalon. Two lysimeters PZ-1 and PZ-2 were installed under the compacted liner.

80. The leachate from the LCRS sump is pumped back into the Class II surface impoundment.

81. In 2012, an evaporative spray field was installed to improve the evaporation rate from the Class II surface impoundment to help maintain the required free board in the Class II
surface impoundment. The evaporative spray field consists of a 407 foot long spray line along the west bank of the pond, a 50 horsepower pump and 30 fog-nozzle sprays which provide misting at a total system flow rate of 250 gallons per minute.

82. Title 27 section 20375(a) requires the Class II surface impoundment to have capacity for seasonal precipitation, a 1,000-year 24-hour design storm event, and to maintain at least two feet of freeboard at all times. The 1,000-year, 24-hour storm event for the site is 6.16 inches, and is referred to hereafter as the “design storm”. To ensure compliance with this requirement, the Discharger is required to maintain at least 30 inches (2-feet plus the amount needed to hold the design storm) of freeboard at all times except in the event of a storm equal to or exceeding the 1,000-year 24-hour design storm event in which case at least two (2.0) feet of freeboard must be maintained. The Class II surface impoundment capacity at the 30 inch and 24 inch freeboard levels are 1.28 and 1.47 million gallons, respectively.

83. In 2002, the Discharger prepared a water balance model in the “Class II Leachate Management Report” showing that the Class II surface impoundment does not have enough capacity to contain a 100 year wet season storm volume or even the 25 year wet season storm volume. During the 2016-2017 wet season, the Class II surface impoundment reached capacity and the Discharger shut down the groundwater extraction system and trucked water offsite for disposal. The Discharger shall prepare the following plans to evaluate and monitor the Class II surface impoundment capacity:

a. Prepare an updated water balance model to take into account the quantity of liquids currently being discharged to the Class II surface impoundment and to determine when the Class II surface impoundment will reach capacity (Provision H.4.H);

b. Update the Class II surface impoundment Operations and Maintenance Plan to include contingency procedures for disposal of the Class II surface impoundment liquid when the Class II surface impoundment is near capacity (Provision H.4.I);

c. Install an automated rainfall gauge to record and monitor precipitation to estimate when the Class II surface impoundment will reach capacity (Provision H.4.L); and,

d. Install a means to directly measure available freeboard in the Class II surface impoundment at any time (Provisions H.4.L).

84. The Action Leakage Rate (ALR) is the maximum flow rate through the primary liner to the LCRS beyond which the Discharger is required to take actions to inspect and repair the primary liner system. The ALR is based on the recommendations in the 1992 USEPA guidance document Action Leakage Rate for Leak Detection Systems. The Discharger reported that the monthly volume of liquid pumped from the Class II surface impoundment LCRS sump ranged from 0 to 300 gallons in June for past five years. In June 2017, a higher volume of 6,596 gallons liquid was pumped from the Class II surface impoundment LCRS sump. The volume of liquid pumped from the Class II surface impoundment LCRS sump in June 2017 indicates that the primary liner of the Class II
surface impoundment may be leaking. During the 25 years of operation, a leak location survey has not been performed. This order requires the Discharger to evaluate the leakage through the Class II surface impoundment primary geomembrane by estimating the ALR using the 1992 EPA guidance, conducting an leak location survey, and comparing the LCRS sump liquid volume to the estimated ALR. The results of the evaluation shall be submitted in a Class II Surface Impoundment Leak Location Test and Primary Liner Performance Evaluation Report as detailed in Provisions H.4.K

LANDFILL CLOSURE

85. The Phase I landfill WMU final cover was completed on 29 August 1995 and repaired to meet Title 27 final cover performance requirements in 2002.

86. Active waste disposal at the Phases II and III landfill WMUs was completed in 2004. However, the Discharger’s attempt to close the units in 2006 failed because construction quality assurance requirements were not followed. Time Schedule Order No. R5-2006-0901 was adopted by the Executive Officer on 2 May 2006 requiring closure completion by specified dates of several tasks necessary for final closure of the Phases II and III landfill WMUs.

87. A Corrective Closure Plan was submitted in February 2009, corrective closure construction was completed in October 2009 and the Construction Quality Assurance Report was submitted in February 2010. The Phase I landfill WMU has been closed in compliance with WDR Order R5-2003-0078, and the Phase II and III landfill WMUs have been closed in compliance with WDR Order R5-2003-0078 and Time Schedule Order R5-2006-0901.

88. Final cover details are as follows:

<table>
<thead>
<tr>
<th>Unit</th>
<th>Final Cover Components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class III Phase I Landfill WMU</td>
<td>A 2-feet foundation layer, overlain by a one-foot 1x10-6 cm/sec low hydraulic conductivity layer, and covered by a 6-inch vegetative cover</td>
</tr>
<tr>
<td>Class II Phase II and III Landfill WMUs</td>
<td>A minimum 2-feet thick foundation soil layer, 40- mil LLDPE geomembrane, goecomposite drainage layer (side slopes only) and a minimum 2-feet thick vegetative soil layer.</td>
</tr>
</tbody>
</table>

LANDFILL POST-CLOSURE MAINTENANCE

89. The ROWD submitted by the Discharger contains a post-closure maintenance plan for the landfill. The plan includes inspection, maintenance, and monitoring of the landfill during the post-closure maintenance period, and includes a post-closure maintenance cost estimate for the entire facility. Inspection and maintenance will include the condition of
90. Once every five years during the post-closure maintenance period, aerial photographic maps of the closed landfill area will be made to identify and evaluate landfill settlement. Iso-settlement maps will be prepared to determine the amount of differential settlement occurring over the previous five years. Pursuant to Title 27, section 21090(e)(2), this Order requires iso-settlement maps to be prepared and submitted every five years.

91. The completed final cover will be periodically tested for damage or defects by monitoring surface emissions pursuant to California Code of Regulations, title 17, section 95471(c) and Title 27, section 21090(a)(4)(A). Defects will be repaired and tested for adequacy based on the closure CQA Plan.

FINANCIAL ASSURANCES

92. Title 27, sections 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The Discharger’s ROWD/JTD includes a cost estimate for landfill post-closure maintenance. The amount of the total estimated cost over 30 years for post-closure maintenance in 2017 dollars is approximately $5.3 million. This Order requires that the Discharger maintain financial assurance with CalRecycle in at least the amount of the post-closure maintenance cost estimate adjusted annually for inflation. The Discharger maintains a Pledge of Revenue Agreement as the financial assurance mechanism for post-closure maintenance.

93. Title 27 section 22100(b) requires owners and operators of disposal facilities that are required to be permitted as solid waste landfills to provide cost estimates for initiating and completing corrective action for known or reasonably foreseeable releases of waste. Title 27 section 22101 requires submittal of a Water Release Corrective Action Estimate and a Non-Water Release Corrective Action Cost Estimate. The Water Release Corrective Action Estimate is for scenarios where there is statistically significant evidence of a release of waste to ground or surface water when comparing point-of-compliance analyte concentrations to background concentrations. The Non-Water Release Corrective Action Cost Estimate is for complete replacement of the landfill final cover system, however a site-specific corrective action plan pursuant to Title 27 section 22101(b)(2) may be provided in lieu of the final cover replacement cost estimate. Title 27 section 22221 requires establishment of financial assurances in the amount of an approved Water Release Corrective Action Estimate or an approved Non-Water Release Corrective Action Cost Estimate, whichever is greater.

94. Title 27, section 22221 requires a cost estimate for corrective action of all known or reasonably foreseeable releases (Water Release Corrective Action). The Discharger
submitted a 2017 cost estimate of $618,627 for Water Release Corrective Action and a 2015 cost estimate of $2.2 million for Non-Water Release Corrective Action. This Order requires that the Discharger maintain financial assurance with the CalRecycle in at least the amount of $2.2 million for the Non-Water Release Corrective Action cost estimate (greater of the two corrective action cost estimates) adjusted annually for inflation. The Discharger maintains a Pledge of Revenue Agreement as the financial assurance mechanism for corrective action.

95. The Class II surface impoundment is currently in service. The Discharger did not propose a closure plan and cost estimate for the Class II surface impoundment closure in the JTD/ROWD report. Title 27 sections 21820 and 22207 require a cost estimate for the surface impoundment closure. This order requires the Discharger to submit a cost estimate for the Class II surface impoundment closure to the Central Valley Water Board for review and approval, and establish an irrevocable closure fund as detailed in Financial Assurance Specification F.4.

CEQA AND OTHER CONSIDERATIONS

96. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code section 21000, et seq., and the CEQA guidelines, in accordance with Title 14, section 15301.

97. This order implements:


b. The prescriptive standards and performance goals of California Code of Regulations, title 27, section 20005 et seq., effective 18 July 1997, and subsequent revisions;


d. The applicable provisions of Title 40 C.F.R. section 258 “Subtitle D” federal regulations as required by State Water Board Resolution 93-62.

98. Based on the threat and complexity of the discharge, the facility is determined to be classified 2-B as defined below:

a. Category 2 threat to water quality, defined as, “Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance.”

b. Category B complexity, defined as, “Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units.”
99. The *Statement of Policy With Respect to Maintaining High Quality of Waters in California, SWRCB Order WQ 68-16* (hereinafter "Anti-Degradation Policy") was adopted by the State Water Board in October 1968. Anti-Degradation Policy limits the Board’s discretion to authorize the degradation of "high-quality waters." This policy has been incorporated into the Board’s Basin Plans. "High-quality waters" are defined as those waters where water quality is more than sufficient to support beneficial uses designated in the Board’s Basin Plan. Whether or not a water is a high-quality water is established on a constituent-by-constituent basis, which means that an aquifer can be considered a high-quality water with respect to one constituent, but not for others. (SWRCB Order No. WQ 91-10.)

100. Anti-Degradation Policy applies when an activity discharges to high quality waters and will result in some degradation of such high quality waters. When it applies, the Policy requires that WDRs reflect best practicable treatment or control (BPTC) of wastes and that any degradation of high quality waters (a) will be consistent with the maximum benefit to the people of the State, and (b) will not result in an exceedance of water quality objectives. If the activity will not result in the degradation of high quality waters, Anti-Degradation Policy does not apply, and the Discharger need only demonstrate that it will use "best efforts" to control the discharge of waste.

101. Anti-Degradation Policy does not apply to the discharge of waste to Buena Vista Landfill. The requirements of this Order are designed to ensure that any such wastes remain contained at the facility and will not reach waters of the State. The requirements of this Order reflect the Discharger’s best efforts to control such wastes.

102. Water Code section 13267(b) provides that: "In conducting an investigation specified in subdivision (a), the Regional Board may require that any person who has discharged, discharges, or is suspected of having discharge or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.

103. The technical reports required by this Order and the attached "Monitoring and Reporting Program R5-201X-XXXX" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

**PROCEDURAL REQUIREMENTS**

104. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution, and to protect public health have approved the use of this site for the discharges of waste to land stated herein.
105. The Central Valley Water Board notified the Discharger and interested agencies and
persons of its intent to prescribe waste discharge requirements for this discharge, and
has provided them with an opportunity for a public hearing and an opportunity to submit
their written views and recommendations.

106. The Central Valley Water Board, in a public meeting, heard and considered all comments
pertaining to the discharge.

107. Any person aggrieved by this action of the Central Valley Water Board may petition the
State Water Board to review the action in accordance with Water Code section 13320
and California Code of Regulations, title 23, sections 2050 and following. The State
Water Board must receive the petition by 5:00 p.m., 30 days after the date that this Order
becomes final, except that if the thirtieth day following the date that this Order becomes
final falls on a Saturday, Sunday, or state holiday, the petition must be received by the
State Water Board by 5:00 p.m. on the next business day. Copies of the law and
regulations applicable to filing petitions may be found on the Internet at:

http://www.waterboards.ca.gov/public_notices/petitions/water_quality

or will be provided upon request.

IT IS HEREBY ORDERED, pursuant to California Water Code sections 13263 and
13267, that Order No. R5-2011-0062 is rescinded except for purposes of enforcement,
and that Amador County, its agents, successors, and assigns, in order to meet the
provisions of Division 7 of the California Water Code and the regulations adopted
thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of any solid waste is prohibited.

2. The discharge of any ‘hazardous waste’ is prohibited. For the purposes of this
   Order, the term ‘hazardous waste’ is as defined in California Code of Regulations,
   Title 23, section 2510 et seq.

3. The discharge of liquid designated wastes outside of the Class II surface
   impoundment or portions of the Class II surface impoundment specifically designed
   for their containment is prohibited. For the purposes of this Order, designated waste
   is as defined in Title 27.

4. The discharge of waste within 50 feet of surface waters is prohibited.

5. Operation of any equipment on the closed landfill WMUs that will likely damage the
   landfill cover is prohibited.
6. The cessation of any corrective action measure (e.g. LFG, leachate and groundwater extraction) is prohibited without written Executive Officer approval. If routine maintenance or a breakdown results in cessation of corrective action for greater than 24 hours, the Discharger shall notify Central Valley Water Board staff.

7. It is prohibited to discharge seep liquid from any new seeps discovered on the Phase I landfill WMU to the Class II surface impoundment until the Central Valley Water Board provides written approval of an updated Class II surface impoundment water balance model that takes into account the new inflow to the Class II surface impoundment.

8. The Discharger shall comply with all Standard Prohibitions listed in Section C of the Landfill SPRRs and Industrial SPRRs.

B. DISCHARGE SPECIFICATIONS

1. Only the nonhazardous liquid wastes shall be discharged to the Class II surface impoundment. A discharge shall not cause a condition of pollution or nuisance as defined by the Water Code section 13050. The nonhazardous liquid wastes allowed to be discharged to the Class II surface impoundment are:
   a. Leachate collected in the Phase II and III landfill WMU LCRS,
   b. Leachate from the Class II surface impoundment LCRS,
   c. LFG condensate from the Phase I, II and III landfill WMUs,
   d. Leachate from the landfill dual gas/leachate extraction system from the Phase I landfill WMU; and
   e. Extracted groundwater from the groundwater extraction trench, and
   f. Leachate from the Phase I landfill WMU seeps.

2. All wells within 500 feet of the unit shall have sanitary seals or shall be properly abandoned. A record of the sealing and/or abandonment of such wells shall be sent to the Central Valley Water Board and to the State Department of Water Resources.

3. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order. If the Discharger is unable to remove and relocate the waste, the Discharger shall submit a report to the Central Valley Water Board explaining how the discharge occurred, why the waste cannot be removed, and any updates to the waste acceptance program necessary to prevent re-occurrence. If the waste is a hazardous waste, the Discharger shall immediately notify the Department of Toxic Substances Control.

4. The Discharger shall comply with all Standard Discharge Specifications listed in Section D and Section L of the Landfill and Industrial SPRRs.
C. FACILITY SPECIFICATIONS

1. Annually, prior to the anticipated rainy season but no later than 31 October, any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed and reported in compliance with MRP No. R5-201X-XXXX.

2. The Discharger shall not perform activities that would damage the landfill cover under existing conditions. For example, vehicles shall not be driven on the cover during muddy conditions since this may create ruts or other depressions that collect and hold storm water and violate post closure maintenance requirements. The Discharger shall post signs visible to the vehicle drivers indicating driving is not allowed on WMU cover.

3. The Discharger shall comply with all Standard Facility Specifications listed in Section E and all General Provisions listed in Section K of the Landfill and Industrial SPRRs which are part of this Order.

Landfill Waste Management Units

4. The Discharger shall maintain and operate the LCRS for the Phase II and III landfill WMUs.

5. Leachate generation by a WMU LCRS shall not exceed 85% of the design capacity of (a) the LCRS, or (b) the sump pump. If leachate generation exceeds this value and/or if the depth of the fluid in an LCRS exceeds the minimum needed for safe pump operation, then the Discharger shall immediately notify the Central Valley Water Board in writing within seven days. Notification shall include a timetable for a remedial action to repair the containment structures or other action necessary to reduce leachate production.

6. Leachate and LFG condensate collected from the Phase I, II and III landfill WMUs shall be discharged to the Class II surface impoundment or to an off-site disposal facility.

Class II Surface Impoundment

7. Only the nonhazardous liquid wastes described in Discharge Specification B.1 shall be discharged to the Class II surface impoundment.

8. The Discharger shall maintain the liquid level in the Class II surface impoundment such that to contain 1,000 year 24-hr storm event (6.16 inch) plus no less than 24-inches of freeboard, total of no less than 30-inches freeboard. If freeboard is less than 30-inches, the Discharger shall immediately notify Central Valley Water Board staff by telephone and email. The notification shall include a description of the proposed contingency plan to reduce the water levels in the Class II surface impoundment and the plan for alternate disposal of the liquids generated on-site.
9. The Class II surface impoundment and related containment structures shall be maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1,000-year, 24-hour precipitation conditions.

10. The Discharger shall install an automated rainfall gauge to track the magnitude of storm events, install a means to directly measure the available freeboard in the Class II surface impoundment at any time and record surface impoundment freeboard levels in accordance with the attached monitoring and reporting program.

11. Waste shall not be placed in the Class II surface impoundment that would affect the physical and chemical properties of the liner to ensure containment of discharged wastes over the operating life, closure, and post-closure maintenance period of the Class II surface impoundments.

12. Waste shall not be placed in the Class II surface impoundment that would affect the physical and chemical properties of the LCRS to ensure the required transmission of leachate over the life of the WMUs and the post-closure maintenance period.

13. LCRSs shall be maintained to collect twice the anticipated daily volume of leachate generated by each surface impoundment and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of the fluid in any LCRS sump shall be kept at the minimum needed for safe pump operation.

14. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.

15. The Class II surface impoundment(s) shall be maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the surface impoundments and by wave action at the water line.

16. Leachate removed from a surface impoundment’s primary LCRS shall be discharged to the impoundment from which it originated.

17. Leachate generation by the Class II surface impoundment to the primary LCRS shall not exceed the ALR to be estimated by the Discharger and approved by the Central Valley Water Board as detailed in Provisions H.4.K. If leachate generation exceeds this value, the Discharger shall:
   a. **Immediately** cease the discharge of waste, excluding the Class II surface impoundment LCRS leachate;
   b. **Immediately** notify Central Valley Water Board staff by telephone and email that the leachate generation exceeded the approved leakage rate. Submit written notification to Central Valley Water Board staff within **seven days** that includes a time schedule to locate and repair leaks in the liner system;
   c. If repairs do not result in a leakage rate less than the approved leakage rate, the Discharger shall submit written notification within **seven days** that includes a
time schedule for replacement of the upper liner of the surface impoundment or other action necessary to reduce leachate production; and
d. Complete repairs or liner replacement in accordance with the approved time schedule under “b” and/or “c”, above.

18. If liquid is detected in the suction lysimeter of the Class II surface impoundment indicating a leak in the containment structures, the Discharger shall:

a. **Immediately** notify Central Valley Water Board staff by telephone and email that the containment structures have failed.
b. **Immediately** sample and test the liquid in accordance with the unsaturated zone monitoring requirements in MRP R5-201X-XXXX.
c. Submit written notification of the release to Central Valley Water Board staff within **seven days** including a time schedule to repair the containment structures.
d. Complete repairs of the containment structures in accordance with the approved time schedule.

19. The Discharger shall submit a Surface Impoundment Operations and Maintenance Plan to the Central Valley Water Board if any changes to the operations and/or maintenance of the surface impoundment occur.

20. The Discharger shall update the water balance model if additional inflows are discharged to the Class II surface impoundment, such as additional leachate seep water from the Phase I landfill WMU, or the model assumptions no longer represent site conditions.

21. If the level in the Class II surface impoundment reaches the 30-inch freeboard level, the Discharger shall **immediately** notify Central Valley Water Board staff by telephone and email with the Class II surface impoundment water level and the proposed actions to prevent the Class II surface impoundment from reaching the 24-inch freeboard level.

22. Sediment or solids that accumulate in the Class II surface impoundment shall be removed when necessary to maintain the designed storage capacity. Sludge and solids removal shall be accomplished in a manner that ensures the continued integrity of the liner and leachate collection system in accordance with the facility’s operations plan. Prior to disposal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Title 27. Central Valley Water Board staff shall be notified at least 30 days prior to removal of sediment and solids from the Class II surface impoundment.

23. Following sediment/solids removal from the Class II surface impoundment, the liner system shall be inspected for damage within 30 days and any damage shall be repaired within 60 days prior to the discharge of additional wastewater. A report
shall be submitted to the Central Valley Water Board within 30 days of completion of the liner inspection or repair.

D. CORRECTIVE ACTION SPECIFICATIONS

1. For all units/modules in a corrective action program to address a release from the unit/module, the Discharger shall implement all corrective measures necessary to remediate the release and prevent a continued or subsequent release from the Unit, including, but not necessarily limited to, repairs, cleanup, and source control. Additional measures shall be implemented, as appropriate, if monitoring data indicates that cleanup is not being achieved in a reasonable timeframe and/or if waste constituent concentrations are increasing. To demonstrate cleanup of all water-bearing media affected by the release, the Discharger shall complete the applicable proof period under Title 27, section 20430(g).

2. The Discharger is required to operate and maintain the current Corrective Action systems including:
   a. Groundwater extraction trench to capture and remove impacted groundwater from the Phase I landfill WMU;
   b. Dual leachate/LFG extraction system in the Phase I landfill WMU to control leachate and/or LFG to prevent VOC impacts to groundwater;
   c. The Phase I landfill WMU cover to limit surface water infiltration into the WMU; and
   d. Leachate seep control trenches in the Phase I landfill WMU to capture leachate seeps.

3. The Discharger shall maintain the leachate levels in the dual leachate and LFG extraction wells at or below the minimum needed to ensure safe pump operation (given the pump intake height and cycle frequency), ensure safe pump operation without excessive pump cycling that could damage the pump, and control the existing leachate release from the Phase I landfill WMU to groundwater. The depth of the leachate shall be no greater than 30 centimeters (12 inches) unless the Discharger demonstrates that it is infeasible to maintain less than 12 inches in the dual leachate and LFG extraction wells.

4. The Discharger shall maintain the leachate levels in the LT-9 leachate seep collection trench sump to 12 inches from the bottom of the sump. Any future leachate seep collection trench sumps are also required to maintain the leachate level to 12 inches from the bottom of the sump.

E. CLOSURE AND POST-CLOSURE MAINTENANCE SPECIFICATIONS

Landfill Waste Management Units

1. The Discharger shall ensure that the vegetative/erosion resistant layer receives necessary seed, binder, and nutrients to establish the vegetation to comply with Title 27 Section 21090 (a) (3). The Discharger shall install necessary erosion and
sedimentation controls to prevent erosion and sediment in runoff from the closed landfill as required.

2. The Discharger shall extract landfill gas from closed landfill units until such time that the landfill gas is no longer a threat to water quality as documented by the Discharger and approved by the Executive Officer.

Class II Surface Impoundment

3. At closure of the Class II surface impoundment, the Discharger shall clean-close the unit pursuant to Title 27 section 21400(b)(1) (or) 21410(a)(1). All waste materials and any components of the containment system shall be completely removed and discharged to an appropriately permitted landfill facility. If after reasonable attempts to remove contaminated natural geologic materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, the impoundment and/or overflow basins shall be closed as a landfill pursuant to Title 27 section 21400(b)(2)(A) (or) 21410(b)(2)(A). In this event, the Discharger shall backfill and grade the area and submit a revised Final Closure and Post-Closure Maintenance Plan (PCMP) proposing a final cover meeting the requirements of Title 27 section 21090 and shall perform all post-closure maintenance in the approved Post-Closure Maintenance Plan. The Discharger shall submit the Closure Documents at least 90 days prior to proposed closure of the Class II surface impoundment as detailed in Provision H.4.B.

4. The Discharger shall comply with all Standard Closure and/or Post-Closure Specifications listed in Section G Landfill and Industrial SPRRs.

F. FINANCIAL ASSURANCE SPECIFICATIONS

1. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for post-closure maintenance for the landfill in at least the amounts of $5,338,131 in 2017 dollars, adjusted for inflation annually. A report regarding financial assurances for closure and post-closure maintenance shall be submitted to the Central Valley Water Board by 1 June of each year. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.

2. The Discharger shall update the PCMP any time there is a change that will increase the amount of the post-closure maintenance cost estimate. The updated PCMP shall be submitted to the Central Valley Water Board, the LEA, and CalRecycle. The PCMP shall meet the requirements of Title 27, section 21769(b), and include a lump sum estimate of the cost of carrying out all actions necessary to update post-closure maintenance plan, and to carry out the first thirty years of post-closure
maintenance. Reports regarding financial assurance required in F.1 above shall reflect the updated cost estimate.

3. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for initiating and completing corrective action for a Non-Water Release from the landfill in at least the amount of the annual inflation-adjusted cost estimate of $2,227,740 in 2015 dollars. A report regarding financial assurances for corrective action shall be submitted to the Central Valley Water Board by 1 June of each year. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.

4. The Discharger shall submit closure cost estimate for the Class II surface impoundment to conduct closure activities pursuant to Title 27 sections 21820 and 22207 to Central Valley Water Board for review and approval by 31 December 2019. The Discharger shall obtain and maintain assurance of financial responsibility with Central Valley Water Board named as beneficiary, for the Class II surface impoundment closure in at least the approved amount of the current closure cost estimate, adjusted for inflation annually, as detailed in Provision H.4.M.

5. The Discharger shall comply with all Standard Financial Assurance Specifications listed in Section H of the Landfill and Industrial SPRRs.

G. MONITORING SPECIFICATIONS

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, surface water, and the unsaturated zone, and in accordance with Monitoring and Reporting Program (MRP) R5-2018-XXXX, and the Standard Monitoring Specifications listed in Section I of the landfill and industrial SPRRs.

2. The Discharger shall, for any landfill unit in a corrective action monitoring program, comply with the corrective action monitoring program provisions of Title 27, MRP R5-2018-XXXX, and the Standard Monitoring Specifications listed in Section I of the landfill and industrial SPRRs. Currently, the Phase I landfill WMU is in corrective action for a leachate release.

3. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP R5-2018-XXXX, and the Landfill and Industrial SPRRs.

4. The concentrations of the constituents of concern in waters passing the Point of Compliance (defined pursuant to Title 27, section 20164 as a vertical surface located at the hydraulically downgradient limit of the landfill unit that extends through
the uppermost aquifer underlying the unit) shall not exceed the concentration limits established pursuant to MRP R5-2018-XXXX.

5. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the Water Quality Protection Standard using procedures specified in MRP R5-2018-XXXX and the Standard Monitoring Specifications in Section I of the landfill and industrial SPRRs.

6. As specified in MRP R5-2018-XXXX, the Discharger shall enter all reports and monitoring data into the online Geotracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23.

7. Intrawell concentration limits for selected inorganic constituents are listed in section C.4. of Monitoring and Reporting Program No. R5-201X-XXXX. The concentration limit for any organic constituents is non-detect.

8. The Discharger shall comply with all Standard Monitoring Specifications and Response to a Release specifications listed in Sections I and J of the Landfill and Industrial SPRRs.

H. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the facility, including the MRP R5-201X-XXXX and the landfill and industrial SPRRs which are part of this Order, and make it available at all times to facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.

2. The Discharger shall comply with all applicable provisions of Title 27 and Subtitle D that are not specifically referred to in this Order.

3. The Discharger shall comply with MRP R5-201X-XXXX, which is incorporated into and made part of this Order by reference.

4. The Discharger shall complete the tasks in these WDRs in accordance with the following time schedule.

<table>
<thead>
<tr>
<th>Task</th>
<th>Compliance Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Construction Plans</td>
<td>90 days prior to proposed construction</td>
</tr>
<tr>
<td>Submit construction and design plans for review and approval for work associated with the WMUs including, but not limited to final cover maintenance that includes repairs to the low-hydraulic conductivity layer, base-liner system repairs, and corrective action system repair.</td>
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</tbody>
</table>
### Task

**B. Closure Documents for Class II Surface Impoundment**

Submit a final closure plan for review and approval (see all Closure and Post-Closure Specifications in Section E, above and Section G of the SPRRs).

<table>
<thead>
<tr>
<th>Compliance Date</th>
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<tbody>
<tr>
<td>90 days prior to proposed construction</td>
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</table>
**Task**

<table>
<thead>
<tr>
<th>C. Groundwater and Unsaturated Zone Monitoring Evaluation</th>
<th>Compliance Date</th>
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</thead>
<tbody>
<tr>
<td>The second 2018 semiannual monitoring report shall include an evaluation of the groundwater and unsaturated zone VOC and inorganic concentration trends in MW-1, MW-11, VZ-5, VZ-10, MW-15, and MW-16. As detailed in Finding 53, higher concentrations of VOCs were detected in groundwater wells MW-1 and MW-11, which are part of the Phase I landfill WMU monitoring network. Furthermore, increases in MW-1 could be associated with landfill gas previously identified in GP-9 (Finding 63). As detailed in Finding 54, increasing trends were observed in lysimeters VZ-5 and VZ-10 and groundwater wells MW-15 and MW-16, which are part of the Phase II and II landfill WMU monitoring network. It is unknown if the constituent concentration increases observed in the unsaturated zone and groundwater are associated with an existing release or new release at the Facility. The Discharger shall submit an evaluation that includes:</td>
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<tr>
<td>1 February 2019</td>
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<tr>
<td>a. A summary of the existing analytical data and concentration trends plotted in graphical format;</td>
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<tr>
<td>b. An evaluation of potential sources and a description of the source determined to be the cause of the observed constituent concentration increases;</td>
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<tr>
<td>c. An investigation Work Plan to characterize the lateral and vertical extent of contamination if the evaluation indicates an existing or new release is migrating;</td>
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<tr>
<td>d. A corrective action(s) proposal to control migration of the release and reduce concentrations to below water quality objectives;</td>
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<tr>
<td>e. A work Plan to install well downgradient of MW-16 if the data indicates and existing or new release is migrating downgradient.</td>
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<td>Task</td>
<td>Compliance Date</td>
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<tr>
<td>D. Groundwater Extraction Trench Performance Evaluation</td>
<td>1 February 2019</td>
</tr>
<tr>
<td>The next annual monitoring report shall include an evaluation of impacts of not running the groundwater extraction system and propose the operation plan to identify the procedures to be followed to run the groundwater extraction system when the Class II surface impoundment exceeds its capacity requirements.</td>
<td>1 February 2019</td>
</tr>
<tr>
<td>E. Monitoring Well Performance Evaluation</td>
<td>1 February 2019</td>
</tr>
<tr>
<td>The Discharger shall evaluate the performance of monitoring wells MW-3A, MW-4A, MW-7, MW-11, MW-16 and MW-20 and determine whether the wells are in compliance with Landfill SPRR I.20 (Finding 53). The evaluation shall also include proposed well maintenance activities if the wells are not performing as required in Landfill SPRR I.20. As detailed in Finding 55, increases in turbidity in well these monitoring wells indicate that the monitoring wells may not be performing as designed.</td>
<td>1 February 2019</td>
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<tr>
<td>Task</td>
<td>Compliance Date</td>
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<tr>
<td>F.  Final Cover Evaluation</td>
<td>15 August 2018</td>
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</table>

The Final Cover Evaluation shall determine whether the Phase I landfill WMU final cover is performing in compliance with Title 27, Section 20950 (Finding 65 and 67), by evaluating potential problem areas including, but not limited to, the following:

a. areas of the vegetative cover, if any, requiring replanting;
b. eroded portions of the erosion-resistant layer requiring regrading, repair, or (for areas where the problem persistently reoccurs) increased erosion resistance;
c. eroded portions of the low-hydraulic-conductivity layer needing repair or replacement;
d. areas lacking free drainage;
e. areas damaged by equipment operation; and,
f. localized areas identified in the iso-settlement survey

As detailed in MRP R5-2018-XXXX, iso-settlement survey maps shall be prepared every five years for the Phase I, II and III landfill WMUs with the next iso-settlement map being conducted in June 2018 (Finding 89).

| G.  Seep Corrective Action Report | 15 August 2018 |

The continued installation of trenches and collection systems to capture seep liquid is not stopping new seeps from developing. The Seep Corrective Action Report shall include an evaluation of the of:

a. the existing seep corrective action measures;
b. the causes for the numerous seeps that have developed in the southern portion of the Phase I landfill WMU; and,
c. proposed correction action measures to stop the seeps.
## Task

### Compliance Date

#### H. Surface Impoundment Water Balance Model

The Surface Impoundment Water balance Model shall include the calculations to determine the capacity of the surface impoundment. The water balance model shall take the following factors into account:

- **a.** The average daily base wastewater inflows including, but not limited to liquids from the groundwater extraction trench, LCRS sumps, LFG extraction system, and leachate seep collection trenches.
- **b.** Evaporation losses from the impoundment in gallons per year distributed monthly.
- **c.** The 10, 25, 50 and 100-year wet year distributed monthly in accordance with average monthly rainfall patterns.
- **d.** The total surface area of 1.2 acres.
- **e.** The design storm event requirements that translate to additional freeboard that needs to be maintained to accommodate the design storm event.
- **f.** The capacity of the lined impoundment at the 24-inch and 30-inch freeboard levels.
- **g.** Loss of storage volume in the surface impoundment due to sludge accumulation each year.

<table>
<thead>
<tr>
<th>Task</th>
<th>Compliance Date</th>
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</thead>
<tbody>
<tr>
<td><strong>H. Surface Impoundment Water Balance Model</strong></td>
<td>15 October 2018</td>
</tr>
<tr>
<td>Task</td>
<td>Compliance Date</td>
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<tr>
<td>------</td>
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</tr>
<tr>
<td><strong>I. Surface Impoundment Operations and Maintenance Plan</strong></td>
<td>15 October 2018 and 60 days prior to operational changes</td>
</tr>
<tr>
<td>The Discharger shall submit a Surface Impoundment O&amp;M Plan to the Central Valley Water Board if any changes to the operations and/or maintenance of the surface impoundment are to occur. The Surface Impoundment O&amp;M Plan shall outline strategies and methods for evaporating leachate, minimizing vectors and odors, managing pond levels, conducting liner inspections, cleaning the ponds and other relevant information and detail how the changes will maintain compliance with this Order and Title 27. Additionally, a detailed description of the contingency plan to dispose of excess without stopping the corrective action systems shall be included in the plan including the monitoring of forecasted precipitation events when the water levels in the surface impoundment near the freeboard elevation. The plan shall include calculations as to the amount of leachate expected to be generated in and pumped from the LCRS back into the impoundment under normal operations in the absence of a liner failure. The plan shall identify the failure of the primary liner and include a response plan in the event of a primary liner failure.</td>
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</tr>
<tr>
<td><strong>J. Surface Impoundment Leak Location Test Work Plan</strong></td>
<td>15 June 2019</td>
</tr>
<tr>
<td>The Discharger shall submit a Work Plan to conduct a leak location test on the primary liner to locate any defects in the primary liner that may have developed over the years from ultraviolet degradation, normal wear and tear, or other activities.</td>
<td></td>
</tr>
</tbody>
</table>
K. Class II Surface Impoundment Primary Liner Performance Evaluation Report

A leak location test shall be performed on the primary liner to find any defects in the primary geomembrane that may have developed over the years from ultraviolet degradation, normal wear and tear, or other activities. The Surface Impoundment Primary Liner Performance Evaluation Report shall include the

a. Results from the primary liner leak location test;
b. Proposed primary liner repair plan, if required, including primary liner repair specifications and Construction Quality Assurance Plan; and,
c. Evaluation of the leakage through the Class II surface impoundment primary geomembrane by estimating the ALR using the 1992 EPA guidance document *Action Leakage Rate for Leak Detection Systems*, for review and approval.
d. Comparison of the liquid volume collected in the Class II surface impoundment LCRS sump to estimated ALR.
e. Analysis of the source of the increase in liquid volume pumped from Class II surface impoundment LCRS sump in June 2017 compared to previous month and similar time period in previous years.
f. Corrective action recommendations, if required.

<table>
<thead>
<tr>
<th>Task</th>
<th>Compliance Date</th>
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<tbody>
<tr>
<td>K. Class II Surface Impoundment Primary Liner Performance Evaluation Report</td>
<td>31 October 2019</td>
</tr>
</tbody>
</table>
### Task

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<tr>
<th>Task</th>
<th>Compliance Date</th>
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<tbody>
<tr>
<td><strong>L. Install an Automated Rainfall Gauge and Freeboard Measuring Device</strong></td>
<td></td>
</tr>
<tr>
<td>An automated rainfall gauge shall be installed prior to the 2018 wet season to evaluate the on-site precipitation. The rainfall gauge installation details and precipitation information shall be included in the semi-annual monitoring reports, as detailed in MRP R5-2018-XXXX. A method for directly measuring the freeboard of the Class II surface impoundment shall be installed at a location that is easily accessible for reading and inspection. For example, a scale may be drawn side slope of the Class II surface impoundment. If a scale is used, the scale used shall be in inches and feet (for every 12-inches) and the scale font size should be readable from 5-feet away.</td>
<td>1 October 2018</td>
</tr>
<tr>
<td><strong>M. Class II Surface Impoundment Closure Financial Assurance</strong></td>
<td></td>
</tr>
<tr>
<td>Title 27 section 21820 and 22207 require closure cost estimate and assurance of financial responsibility for surface impoundments to ensure closure of surface impoundment meets all applicable requirements of Title 27. The Discharger shall submit closure cost estimate for the Class II surface impoundment to conduct closure activities to Central Valley Water Board for review and approval. Upon approval, the Discharger shall obtain and maintain assurance of financial responsibility with Central Valley Water Board named as beneficiary, for the Class II surface impoundment closure in at least the approved amount of the current closure cost estimate, adjusted for inflation annually.</td>
<td>31 December 2019</td>
</tr>
</tbody>
</table>

5. All reports required by this Order shall be submitted pursuant to Water Code section 13267, and to the extent applicable, shall be prepared by the appropriately licensed professional as described in the Standard Provisions and Reporting Requirements.

6. The Discharger shall comply with all General Provisions listed in Section K of the Landfill and Industrial SPRRs.
7. The Discharger shall maintain and operate the Corrective Action systems as long as necessary to control and remediate VOC releases and comply with applicable regulations. The Corrective Action systems include:

   a. Groundwater extraction to capture and remove impacted groundwater from the Phase I landfill WMU;
   b. Dual leachate/LFG extraction system in the Phase I landfill WMU and LFG extraction system in the Phase II and III landfill WMUs to control leachate and/or LFG to prevent VOC impacts to groundwater;
   c. The Phase I, II and III landfill WMU cover to protect the integrity of the cover and to prevent storm water from infiltrating into the WMUs; and
   d. Seep leachate control system in the Phase I landfill WMU to prevent surface water contamination.

8. The Discharger shall, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order and of the California Water Code.

9. If there is any conflicting or contradictory language between the WDRs, the MRP, or the SPRRs, then language in the WDRs shall supersede either the MRP or the SPRRs, and language in the MRP shall supersede the SPRRs.

10. This Order shall take effect upon the date of adoption.

11. The Central Valley Water Board has converted to a paperless office system. All project correspondence and reports required under this Order shall therefore be submitted electronically rather than in paper form, as follows:

   All technical reports and monitoring reports required under this Order shall be converted to PDF and uploaded via internet to the State Water Board’s GeoTracker database at [http://geotracker.waterboards.ca.gov](http://geotracker.waterboards.ca.gov), as specified in California Code of Regulations, title 23, section 3892, subdivision (d) and section 3893. Project-associated analytical data shall be similarly uploaded to the GeoTracker database in an appropriate format specified under this Order under a site-specific global identification number. Information on the GeoTracker database is provided at:

Notification of the Geotracker upload shall be emailed to the Central Valley Water Board at: centralvalleysacramento@waterboards.ca.gov. To ensure that the submittal is routed to the appropriate staff as quickly as possible, the following information shall be included in the body of the email:

<table>
<thead>
<tr>
<th>Attention:</th>
<th>Title 27 Compliance &amp; Enforcement Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Title</td>
<td>Or Title 27 Permitting Unit</td>
</tr>
<tr>
<td>Geotracker Upload ID</td>
<td>Amador County</td>
</tr>
<tr>
<td>Discharger name:</td>
<td>Buena Vista Landfill</td>
</tr>
<tr>
<td>Facility name:</td>
<td>Amador County</td>
</tr>
<tr>
<td>County:</td>
<td>CIWQS place ID: 210700</td>
</tr>
</tbody>
</table>

I, PAMELA C. CREEDON, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on ______________________.

____________________________________
PAMELA C. CREEDON, Executive Officer

MP