

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER R5-2018-0048

WASTE DISCHARGE REQUIREMENTS  
FOR  
EL DORADO COUNTY  
UNION MINE LANDFILL  
CLASS II LANDFILL, CLOSED CLASS III LANDFILL AND CLASS II SURFACE  
IMPOUNDMENT  
OPERATION, MAINTENANCE, CLOSURE, AND POST-CLOSURE MAINTENANCE  
EL DORADO COUNTY

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

1. El Dorado County (hereinafter Discharger) owns and operates the Union Mine Landfill (Facility) approximately three miles south of the town of El Dorado in El Dorado County, in the northwest quarter of Section 12, T9N, R10E, MDB&M, as shown in Attachment A. The Facility is a non-hazardous solid waste and 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. R5-2006-0020, which was continued for another five years on 8 June 2011<sup>1</sup>.
2. These WDRs have been prepared to prescribe continued operation of the Class II Expansion landfill waste management unit (WMU), closure requirements for the remaining Class III Old landfill WMU and the Class II Expansion landfill WMU, post-closure maintenance requirements for the closed portion of the Class III Old landfill WMU, and continued operation of the Class II surface impoundment. An underground gold mine, which operated from the 1860s through the 1940s, underlies part of the Facility. Three mine tunnels, one mine adit, one stope and one mine shaft are in the vicinity of the Class II Expansion and Class III Old landfill WMUs. This Order also includes requirements for monitoring of surface discharges from the mine workings and other surface discharges located on the property.
3. The following documents are attached to this Order and hereby incorporated into and made a part of this Order by reference:
  - Attachment A – Site Location Map

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<sup>1</sup> "Continuance of Waste Discharge Requirements for Union Mine Landfill, El Dorado County", dated 8 June 2011, issued by Central Valley Regional Water Resources Control Board.

- Attachment B – Site Plan and Monitoring Network
  - Information Sheet
  - December 2015 Standard Provisions and Reporting Requirements: Nonhazardous Solid Waste Discharges Regulated by Subtitle D (Landfill SPRRs)
  - April 2016 Standard Provisions and Reporting Requirements for Industrial Facilities Regulated by Title 27 (Industrial SPRRs)
4. The Facility is on a 321.6-acre property located at 5700 Union Mine Road, El Dorado County, CA. The 41.3-acre landfill is comprised of a 35.3-acre unlined Class III Old landfill WMU and a 6.0-acre lined Class II Expansion landfill WMU. The Class II surface impoundment area is 0.84 acres. The Class II Expansion landfill WMU and Class III Old Landfill WMU of the Facility are designated as WMU-1 and the Class II surface impoundment is designated as WMU-2. The existing permitted WMU-1 and WMU-2 areas are shown in Attachment B. The Facility is comprised of Assessor's Parcel Numbers (APN) 092-011-17, -20 and -21.
5. On 8 January 2018, 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 JTD/ROWD has been used in revising these WDRs. The JTD/ROWD contains the applicable information required in Title 27. The JTD/ROWD and supporting documents contain information related to this revision of the WDRs including:
- Updates/revision to site information and attachment maps,
  - Requirements for the Class II Expansion landfill WMU and the Class II surface impoundment operation and maintenance,
  - Closure requirements for remaining Class III Old landfill WMU and Class II Expansion landfill WMU,
  - Post-closure maintenance requirements for the closed Class III Old landfill WMU,
  - Revisions to the Facility's Detection Monitoring Program (DMP),
  - Monitoring requirement for surface discharges from historic mining related features, and
  - Requirements for financial assurance.
6. On 26 January 2006, the Central Valley Water Board issued Order No. R5-2006-0020 in which the landfill areas of the WMU-1 at the Facility were classified as a Class II and Class III units for the discharge of non-hazardous waste and municipal solid waste. The Class II surface impoundment (WMU-2) continues to receive leachate and landfill gas (LFG) condensate from the WMU-1, and direct rainfall. This Order continues to classify the Old landfill WMU as Class III, the Expansion landfill WMU as Class II and the surface impoundment as Class II units in accordance with Title 27.
7. The existing landfill units authorized by this Order are described as follows:

<u>Unit</u>	<u>Area</u>	<u>Liner/LCRS<sup>1</sup> Components</u>	<u>Unit Classification &amp; Status</u>
Class III Old landfill WMU	35.3 acres (total)	Unlined, constructed over native materials.	Class III, filled and closed 33.1 acres as of 2006. The remaining 2.2 acre has an interim cover.
	4.9 acre	Final cover top to bottom: a one-foot thick vegetative layer, a one-foot thick low permeability layer and two-foot thick foundation layer.	Closed during October 1997
	14.6 acres and a 1-acre sloped area	Final cover top to bottom: a one-foot thick vegetative layer, GCL <sup>2</sup> , and two-foot thick foundation layer.	Closed during fall 1998
	13.6 acres including 0.6-acre inactive landfill area	Final cover top to bottom: one-foot thick vegetative soil layer, a drainage layer of double-side geotextile fabric, a 60-mil LLDPE <sup>3</sup> geomembrane, and existing interim cover (two-foot minimum thick clay/foundation layer with maximum hydraulic conductivity of $1 \times 10^{-7}$ cm/sec <sup>4</sup> ) to provide foundation layer	Closed in November 2007
	2.2 acres	Interim cover: two-foot minimum thick clay layer with maximum hydraulic conductivity of $1 \times 10^{-7}$ cm/sec	Interim closure in 1992
Class II Expansion landfill WMU	6 acres	From top to bottom on base and slope 3:1 horizontal:vertical (H:V) or less: one-foot protective soil cover, 8 oz per square yard geotextile, one-foot drain layer, a 60-mil HDPE <sup>5</sup> double-sided textured geomembrane, two-foot compacted clay liner, 2-foot and 6-inches compacted fill and six inches subdrain blanket.	Class II, active
		From top to bottom on side slopes greater than 3:1 H:V: minimum two-foot protective layer, 16 oz per square yard geotextile, 60-mil	

<u>Unit</u>	<u>Area</u>	<u>Liner/LCRS<sup>1</sup> Components</u>	<u>Unit Classification &amp; Status</u>
		HDPE double sided textured geomembrane and GCL.	
Class II surface impoundment	0.84 acres (2 million gallons volume with 2-foot freeboard)	Top to bottom: a 60-mil HDPE geomembrane, two-foot clay liner with $1 \times 10^{-7}$ cm/sec hydraulic conductivity and two gravel filled LCRS trenches running the length of the Class II surface impoundment.	Class II, active

<sup>1</sup> LCRS – Leachate collection and removal system

<sup>2</sup> GCL - Geosynthetic Clay Liner

<sup>3</sup> LLDPE - Linear low-density polyethylene

<sup>4</sup> cm/sec – centimeters per second

<sup>5</sup> HDPE - High-density polyethylene

8. On-site facilities at the Union Mine Landfill property include: 33.1 acres of the closed Class III Old landfill WMU, 2.2 acres of Class III Old landfill WMU with interim cover and 6 acres of active Class II Expansion landfill WMU; an active Class II surface impoundment; landfill gas(LFG) recovery system, LFG processing facility and flare; a leachate and septage or wastewater treatment facility (WWTF); two spray fields (north and south); mining tunnels, adits and shafts; three sedimentation basins (north, south and west); surface water drainage control facilities; a storage building; El Dorado Rod and Gun Club and El Dorado County Shooting Range. The landfill facilities covered under this Order includes partially closed unlined Class III Old landfill WMU, an active Class II Expansion landfill WMU, and an active Class II surface impoundment; and is known as Union Mine Landfill. The Discharger also operates WWTF and wastewater spray fields adjacent to the landfill facility. Treated septage and landfill leachate are discharged to the spray fields under separate WDRs. The WWTP and the spray fields are known as the Union Mine Disposal Site (hereafter “disposal site”).
  
9. On 9 October 1991, the United States Environmental Protection Agency (USEPA) promulgated federal 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) R5-2018-0048 and in the 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**

12. The Union Mine Landfill is not open to the general public. It has a partially closed unlined Old landfill WMU, an active Expansion landfill WMU and an active surface impoundment which are classified as Class III, Class II and Class II, respectively, in accordance with Title 27.
13. The partially closed Class III Old landfill WMUs received non-hazardous solid waste, friable asbestos, septic tank and grease trap pumpings, tire and rubber products, municipal solid waste, construction and demolition debris, green waste, wood waste, scrap metal and other inert wastes in the past.
14. The Class III Old landfill WMU stopped accepting waste in 1996 and the closure activities began in 1997.
15. The Class II Expansion landfill WMU is currently used on an as needed or contingent basis, and since 1997, has only received solid waste from the on-site offices and sludge generated from the on-site Leachate and Septage Treatment Facility.
16. The onsite WWTF receives the following waste streams:
  - Liquid waste and septage generated off-site and hauled to the site by permitted commercial haulers,
  - Liquid from the Class II surface impoundment, and
  - Portable toilet waste

The sludge generated from treating above waste streams is dewatered at the WWTF and discharged at the Class II Expansion landfill WMU active cell. The treated wastewater effluent is land applied in the two spray fields under separate WDRs. When the Discharger suspends waste disposal at the Class II Expansion landfill WMU, sludge from the WWTP can be hauled for off-site disposal.

17. Fall 2017 semiannual monitoring data shows that dewatered sludge solids concentration disposed at the Class II Expansion landfill WMU ranged from 17 to 38 percent.
18. The Discharger proposes to continue to discharge non-hazardous solid waste, including non-hazardous de-watered wastewater treatment plant sludge, solids from the Class II surface impoundment and other general non-hazardous solid waste including municipal solid waste, to the lined Class II Expansion landfill WMU. These classified wastes may be discharged only in accordance with Title 27, Resolution 93-62, and Subtitle D as required by this Order.
19. The Class II surface impoundment will continue to receive leachate, which is a designated waste, generated from the landfill WMUs. These classified wastes may be discharged only in accordance with Title 27, Resolution 93-62, and Subtitle D as required by this Order.
20. 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 WMU, 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 WMUs, 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.

21. Leachate from the unlined Class III Old landfill WMU is collected through the toe-drain constructed at the toe of the Class III Old landfill WMU slope. The toe-drain consists of a perforated polyvinyl chloride (PVC) pipe in a gravel filled trench. The perforated pipe transitions to a solid wall PVC pipe at the end of the toe-drain to convey the leachate to the Class II surface impoundment by gravity flow. Leachate from the Class II Expansion landfill WMU is collected through the perforated high density polyethylene (HDPE) LCRS pipes and conveyed through a solid wall HDPE pipe to the Class II surface impoundment by gravity flow. Total leachate flow discharged from the WMU-1 to the Class II surface impoundment is measured monthly and 808,060 gallons of leachate was discharged to

the Class II surface impoundment in 2017, as reported in "*Fall 2017 Semiannual Monitoring Report*". Table in Finding 24 shows the constituents presence in the landfill WMUs leachate.

22. The leak detection and collection layer underlying the clay liner in the Class II surface impoundment liner system functions as a leak detection and collection layer to the liner system and as an underdrain to maintain separation between the waste and the underlying groundwater. Liquid collected through the leak detection and collection layer is discharged to the LCRS sump, from where the liquid is pumped back to the Class II surface impoundment. The total quantity of liquid pumped from the Class II surface impoundment LCRS sump has not been historically measured. Estimated volume of liquid pumped from the Class II surface impoundment LCRS sump is approximately 2,000 gallons in 2017. The Discharger shall install a flow totalizer to the Class II surface impoundment LCRS sump pump discharge pipe as detailed in Provision H.16.J. The flow rates shall be monitored and reported per the MRP requirements.
23. The following liquids are currently approved for discharge to the Class II surface impoundment:
- Leachate collected from the partially closed Class III Old landfill WMU toe drains,
  - Leachate collected from the active Class II Expansion landfill WMU LCRS,
  - LFG condensate collected from the LFG recovery system on the partially closed Class III Old landfill WMU,
  - Liquid collected from the Class II surface impoundment leak detection and collection layer,
  - Runoff from the septage truck washout area, and
  - Direct rainfall.

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

24. The Discharger provided monitoring parameter analytical data in the "*Fall 2017 Semiannual Monitoring Report*" for liquid stored in the Class II surface impoundment, leachate from the WMU-1 LCRS pipe (combined flow), and liquid from the Class II surface impoundment LCRS sump is summarized in the table below. The table also includes the 5-year Constituents of Concerns (COC) analytical data provided in first semiannual 2016 sampling event, 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.

Constituent	Unit	Concentration			CA Primary MCL	Lowest Applicable WQO	Background Groundwater Data <sup>a, d</sup>
		Class II Surface Impoundment	Class II Surface Impoundment LCRS Sump	WMU-1 LCRS Pipe			
<b>Monitoring Parameters <sup>b</sup></b>							
Alkalinity	mg/L	30	49	200			316.7
Bicarbonate	mg/L	30	49	200			316.7
Chloride	mg/L	19	44	79		250 <sup>f</sup>	40
Nitrate as Nitrogen	mg/L	1.3	3.2	43	10	CA Primary MCL	1.74
Sulfate	mg/L	12	280	83		250 <sup>f</sup>	198.3
TDS	mg/L	100	530	690		500 <sup>f</sup>	608
VOC <sup>c</sup>	µg/L	14	< RL	< RL			
pH		9.65	7.44	7.33			
Electrical Conductivity	µmhos/ cm	178	595	914			
<b>Inorganics <sup>e</sup></b>							
Arsenic	mg/L	0.053	0.004	0.01	0.01	0.00002 <sup>g</sup>	
Barium	µg/L	37	52	150	1,000	700 <sup>h</sup>	78.3
Calcium	mg/L	21	39	110			
Copper	µg/L	10	15	15	1,300	1,000 <sup>f</sup>	10
Iron	µg/L	8.2	ND	32		300 <sup>f</sup>	
Magnesium	mg/L	26	26	75			
Manganese	µg/L	12	2.7	710		50 <sup>f</sup>	2925
Mercury	µg/L	0.41	0.54	0.71	2		1
Potassium	mg/L	5.1	6.1	35			
Silver	µg/L	5.4	5.3	5.7		100 <sup>f</sup>	10
Sodium	mg/L	25	53	120		20,000 <sup>h</sup>	
Vanadium	mg/L	0.0031	0.0032	0.0036		50 <sup>i</sup>	3
Zinc	µg/L	ND	11	17			
TOC	mg/L	16	9.7	9.7			7.4
VOC		ND	ND	ND			

Notes:

mg/L milligrams per liter  
 µg/L micrograms per liter  
 µmhos/cm micromhos per centimeter  
 ND non-detect  
 RL Reporting limit  
 TDS total dissolved solids  
 TOC total organic carbon  
 VOC volatile organic carbon

a Monitoring parameter concentration limits from *Fall 2017 Semiannual Monitoring Report*

b Semiannual monitoring event analytical data from *Fall 2017 Semiannual Monitoring Report*



- c Acetone was detected in leachate from Class II Expansion and Class III Old landfill WMUs, but below the reporting limit. 2-butanone, 2-hexanone, acetone and chloromethane were detected in liquid stored in the Class II surface impoundment, but acetone concentration was above the reporting limit.
- d Concentration Limits for 5-Year COC from *Sprint 2016 Semiannual Monitoring Report*
- e 5-Year COC analytical data from *Spring 2016 Semiannual Monitoring Report*
- f California Secondary MCL
- g USEPA Integrated Risk Information System (IRIS) – One-in-a-Million Incremental Cancer Risk Estimates for Drinking Water
- h USEPA Health Advisory – Drinking Water for Non-cancer Health Effects
- i California Notification Levels – Drinking Water Standards MCL

25. The analytical data generated from sampling and analysis of leachate from the WMU-1 and liquid from the Class II surface impoundment LCRS sump shows that the concentrations of some of the constituents, including, but not limited to arsenic, nitrate, manganese, sulfate and TDS, exceed the primary MCL or the lowest applicable WQO. Additionally, VOCs were detected in the Class II surface impoundment samples during the second semiannual 2017 monitoring event. The data indicate that some of the discharges to the Class II surface impoundment consist of or contain pollutants that, under ambient environmental conditions at a WMU, 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.
26. An on-site soil borrow area provides required quantities of cover materials for daily, intermediate and final covers. Soil excavated during grading operations for the spray fields was stockpiled along the north edge of the concrete lined Storm Water Diversion Channel and is being used for daily cover in the Class II Expansion landfill WMU. Additionally, the Discharger uses soil acquired from CalTrans for daily and intermediate cover. When the Discharger suspends waste disposal at the Class II Expansion landfill WMU, an intermediate cover is applied across the active section of the Class II Expansion landfill WMU. As a result of severe winter storm conditions, excessive erosion was observed across the entire active section of the Class II Expansion landfill WMU and along the eastern downgradient face of the Class II Expansion landfill WMU during inspection by the Central Valley Water Board staff on 21 November 2017. The WMUs and their respective containment structures shall be designed and constructed to comply with requirements in Title 27 §20365 (a). The Discharger shall comply with Construction Specification F.6 of Landfill SPRRs.
27. Title 27, section 20690 allows the use of alternative daily cover (ADC) at MSW landfills upon approval by the Local Enforcement Agency (LEA) and concurrence from CalRecycle. Title 27, section 20705 provides the Water Board's regulations for all daily and intermediate cover including that it shall minimize the percolation of liquids through waste and that the cover shall consist of materials that meet the landfill unit classification (Class II or Class III). The regulations also require that for non-composite lined portions of the landfill, that any contaminants in the daily or intermediate cover are mobilized only at concentrations that would not adversely affect beneficial uses of waters of the state in the event of a release. For composite-lined portions of the landfill, the regulations require

that constituents and breakdown products in the cover material are listed in the water quality protection standard.

28. Landfills propose new ADC materials regularly in order to preserve landfill air space and to beneficially reuse waste materials. Title 27, section 20686 includes regulations for beneficial reuse, including use of ADC. Approval of ADC is primarily handled by the LEA and CalRecycle under Title 27, section 20690. This Order allows any ADC proposed for use at the Facility after the adoption of this Order to be approved by Central Valley Water Board staff provided the Discharger has demonstrated it meets the requirements in Title 27, section 20705. The approved ADC materials should then be listed in the Facility's WDRs during the next regular update or revision with information about the Discharger's demonstration. This Order also includes a requirement that ADC only be used in internal areas of the landfill unless the Discharger demonstrates that runoff from the particular ADC is not a threat to surface water quality. The demonstration can take sedimentation basins into account.

### **SITE DESCRIPTION**

29. The Union Mine Landfill is located within a steep canyon that lies in the Mother Lode mining district of the Western Sierra Nevada foothills. The site and the area around the site were mined extensively for gold from 1850 to 1940, and the site is underlain by underground workings from the Church and Union Mines. Numerous interconnected slopes, shafts, and tunnels exist beneath the active and inactive portions of the disposal site. Three mine tunnels, one mine adit, one stope and one mine shaft are located in the vicinity of the WMU-1 expansion area. In preparation to WMU-I landfill expansion the Springfield shaft collar and the Minerva Tunnel adit were closed, plugged and capped in 1993.
30. The property was used as an illegal refuse dump as early as the 1940s, and as an open burn dump from 1962 when the Discharger obtained the property until 1969 at which time it was converted to a solid waste sanitary landfill.
31. The landfill is in an area of steep terrain, surrounded by ridges with elevations ranging from 1,180 to 1,475 feet mean sea level (MSL). The ridge immediately west of the site, known as Logtown Ridge, is approximately 1,950 feet MSL.
32. Land uses within one mile of the Facility include rural residential parcels to the north, east, south and west; and agricultural parcels to the northwest of the Facility. Land owned by the Bureau of Land Management borders the Facility to the north, east and south.
33. There are 14 domestic groundwater supply wells within one mile of the Facility.
34. The landfill is underlain by weathered to fresh, thin-bedded slates and phyllite of the Mariposa Formation. The weathered zone ranges from 20 to 30 feet in depth. No

Holocene faults are within 200 feet of the landfill. The potentially active Melones Fault Zone which is part of the Foothills Fault system is 0.6 miles east of the Facility.

35. Based on a site-specific seismic analysis, the controlling maximum probable earthquake (MPE) for the site is a moment of magnitude 5.5 event along the Foothill Fault System at a closest rupture distance of 0.6 miles from the site.
36. Based on a site-specific seismic analysis, the controlling maximum credible earthquake (MCE) for the site is a moment of magnitude 6.5 event along the Foothill Fault System at a closest rupture distance of 0.6 miles from the site.
37. The estimated hydraulic conductivity of the weathered Mariposa Formation in the vicinity of the site is approximately  $3 \times 10^{-3}$  cm/sec. The estimated hydraulic conductivity in faulted and foliated phyllite near the Springfield shaft ranges between  $1.24 \times 10^{-2}$  to  $1.11 \times 10^{-5}$  cm/sec, with a mean value of  $1.93 \times 10^{-3}$  cm/sec.
38. Groundwater beneath the Facility occurs in fractured bedrock, valley alluvium, and the underground mine workings. Groundwater flow direction is towards the east and southeast. Groundwater ranges in depth from less than 10 feet to 120 feet below ground surface.
39. Arsenic and iron are naturally occurring constituents in groundwater throughout the mineralized belt of the Foothills. They are derived from sulfide minerals (primarily Pyrite and Arsenopyrite) that are associated with gold deposits in bedrock. Weathering of the mineralized rock creates acidic conditions and forms soluble metal complexes. Therefore, these constituents are not used for detection monitoring for the landfill units.
40. The Facility receives an average of 38.7 inches of precipitation per year as measured at the Placerville Station. The mean pan evaporation is 67.9 inches per year as measured at the Auburn Weather Station.
41. The 100-year, 24-hour precipitation event for the Facility is estimated to be 6.62 inches, based on National Oceanic and Atmospheric Administration (NOAA), Atlas 14 Point Precipitation Frequency Estimates (with 90 percent confidence intervals) for California, Atlas 14, Volume 6, Version 2.
42. The 1,000-year, 24-hour precipitation event for the Facility is estimated to be 9.05 inches, based on NOAA, Atlas 14 Point Precipitation Frequency Estimates for California, Atlas 14, Volume 6, Version 2.
43. The 100-year wet season precipitation is 73.2 inches. Maximum evaporation is expected in July with an average value of 11.66 inches. Minimum evaporation is expected in December with an adjusted average value of 1.02 inches.

44. The 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 060040-0750-B.
45. A Surface Water Diversion Channel was constructed to control, intercept and divert runoff from the Union Mine Landfill south and southwest areas, in order to isolate uncontaminated surface waters from water that might have come into contact with waste.
46. All storm water runoff from within the footprint of the Facility is diverted to one of the three storm water sedimentation basins: the north, south and west sedimentation basins. The sedimentation basins are located southeast of the landfill as shown on Attachment B. The basins detain storm water run-on and run-off for sedimentation control during the rainy season. The west sedimentation basin overflows to the north sedimentation basin. The south sedimentation basin, which receives flow from the Surface Water Diversion Channel, is normally dry during the summer months. The sedimentation basins discharge to Martinez Creek under the general storm water permit for industrial facilities.
47. The Union Mine Landfill site exhibits springs which flow seasonally or year around as reported by the Discharger. The springs are sampled and monitored per MRP requirements. During the 14 February 2018 site inspection by the Central Valley Water Board staff, springs were observed at monitoring locations SS-1, SS-3 (Lower Spring) and MS-1.

## **SURFACE WATER AND GROUNDWATER CONDITIONS**

48. The *Water Quality Control Plan for Sacramento and San Joaquin River Basins, Fourth Edition* or *Water Quality Control Plan for the Tulare Lake Basin, Second Edition* (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
49. Surface water drainage from the Union Mine Landfill site is to the south/southeast to an unnamed tributary that drains into Martinez Creek, a perennial stream 500 feet east of the Facility and a tributary of the North Fork Cosumnes River which eventually discharges to the Cosumnes River, thence to the Sacramento-San Joaquin Delta.
50. The designated beneficial uses of Cosumnes River, as specified in the Basin Plan, are municipal and domestic supply (MUN); agricultural supply (AGR); water contact recreation (REC-1); non-contact water recreation (REC-2); warm fresh water habitat (WARM); cold freshwater habitat (COLD); migration (MIGR); spawning (SPWN) and wildlife habitat (WILD).
51. The direction of groundwater flow is generally toward the east and southeast. The estimated average groundwater gradient is approximately 0.1 feet per foot based on groundwater contour map provided in semiannual monitoring reports.

52. Groundwater elevations range from about 1115 feet MSL to 1295.8 feet MSL during second semiannual 2017 monitoring event. Groundwater elevation seasonally varies approximately 2 to 14 feet in monitoring wells.
53. Shallow groundwater flow discharging to the west of the Class II Expansion landfill WMU is intercepted by a subdrain under Union Mine Road Underdrain and diverted into the trapezoidal storm water ditch. The discharge flow daylights at sampling location GWD -1.
54. Artesian groundwater flow from the deep, unweathered zone was encountered in the Springfield Shaft during excavation and capping efforts. The artesian conditions encountered are suggestive of confining pressures overlying and separating the deeper groundwater from the weathered zone. Additionally, there are several springs on the property.
55. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO).

### GROUNDWATER, UNSATURATED ZONE AND SURFACE WATER MONITORING

56. The existing groundwater monitoring network for the Union Mine Landfill consists of background monitoring wells MW-5, MW-6, and MW-10 for WMU-1 and MW-C for WMU-2, and detection monitoring wells MW-7, MW-9, UM-3, MW-11, MW-12, and MW-13 for WMU-1, and MW-A for WMU-2. The casing and screen elevations of groundwater monitoring wells are provided in the following table. Attachment B of this Order shows the locations of groundwater monitoring wells.

<u>Well ID</u>	<u>Top of Casing (TOC) Elevation (MSL)</u>	<u>Well Depth (ft)</u>	<u>Screen Interval from TOC (ft)</u>	<u>Groundwater Zone being Monitored</u>	<u>Well Type</u>	<u>WMUs Being Monitored</u>	<u>Depth to groundwater (ft)<sup>a</sup></u>
MW-5	1309.15	43.0	20-40	Shallow	Background	WMU-1	12.81
MW-6	1295.96	140.0	118-138	Deep	Background	WMU-1	12.74
MW-7	1169.05	154.0	130-150	Deep	Detection	WMU-1	16.85
MW-9	1179.12	220.0	197-217	Deep	Detection	WMU-1	27.41
MW-10	1361.30	142.0	120-140	Deep	Background	WMU-1	120.98
MW-11	1273.07	80.0	58-78	Shallow	Detection	WMU-1	45.51
MW-12	1160.07	27.9	13-26	Shallow	Detection	WMU-1	23.97
MW-13	1179.50	47.6	29-47	Shallow	Detection	WMU-1	46.11
UM-3	1161.57	123.0	60-90	Deep/Artesian	Detection	WMU-1	0
MW-A	1142.68	35.0	19-34	Shallow	Detection	WMU-2	27.87
MW-C	1156.71	50.0	9-50	Shallow	Background	WMU-2	25.95

<sup>a</sup> Fall 2017 Semiannual Monitoring Report

57. The WMU-1 share a common detection monitoring system and the WMU-2 has a separate detection monitoring system for groundwater.
58. 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. However, some monitoring wells may have inadequate screen intervals. This is discussed in Finding 74. Additional downgradient monitoring wells may be required if the analytical data indicate a release in the existing downgradient monitoring wells during the subsequent monitoring events.
59. The landfill WMUs are not monitored for unsaturated zone releases. The surface topography and complex hydrogeologic nature of the underlying geology of the area, primarily of fracture flow in bedrock, makes unsaturated zone monitoring inappropriate and impractical. Additionally, the unlined Class III Old landfill WMU was operated as a pit fill operation prior to being categorized as a solid waste sanitary landfill in 1969 and predates the regulatory requirements for MSW landfills. The Class II surface impoundment unsaturated zone monitoring system consists of two pressure/vacuum lysimeters L2N and L2S installed beneath the clay liner in crush rock fill material.
60. At the time this Order was adopted, the Discharger's detection monitoring program for unsaturated zone at the landfill satisfied the requirements contained in Title 27
61. The discharger's surface water monitoring system complies with the applicable provisions of §20415 and §20420 of Title 27 and consists of five sampling locations which are shown in Attachment B:

<u>Sampling Point</u>	<u>Location</u>	<u>Type</u>
S-1	In the unnamed tributary prior to entering the west sedimentation basin	Detection
S-2	Outfall discharge from the north sedimentation basin prior to entering Martinez Creek	Detection
S-6	In Martinez Creek approximately 600 feet upstream from location S-2	Background
S-7	In Martinez Creek approximately 450 feet downstream from location S-2	Detection
S-8	At junction box prior to enter the north sedimentation basin	Detection

62. The Discharger's surface water monitoring system also consists of spring monitoring at designated location MS-1, along the western side of Church Mine Road, downslope of the Class II surface impoundment.

63. Monitoring programs at the Union Mine Landfill site also includes monitoring of Pendar Tunnel, groundwater drains and springs. The sampling locations are tabulated in following table and shown in Attachment B:

<u>Sampling Point</u>	<u>Location</u>
GWD-1	Union Mine Road underdrain
GWD-2	Class II landfill WMU underdrain
GWD-3	Spring west of spray fields
Pendar Tunnel	Discharge from Pendar Tunnel
SS-1	Springfield shaft spring
SS-2	Springfield shaft pond
SS-3	Lower spring to Springfield shaft

64. Volatile organic compounds (VOCs) are often detected in a release from a MSW landfill and are often associated with releases of landfill gas rather than leachate. Since VOCs 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.
65. 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.
66. 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 landfill and Industrial 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.

67. For a naturally occurring constituent of concern, the Title 27 requires concentration limits for each constituent of concern be determined as follows:
- By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
  - By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).
68. The Discharger submitted a *Water Quality Protection Standard (1998 WQPS)* report in 1998 proposing statistical data analysis methods to calculate concentration limits for each monitored constituent in accordance with Title 27. The 1998 WQPS report proposed to use interwell data analysis to calculate tolerance interval for the monitored constituents. MRP R5-2006-0020 allowed the Discharger to update the concentration limits at least annually. The Discharger annually updated concentration limits and presented them in second semiannual monitoring reports until 2015. In 2015, proposed concentration limits for chloride, nitrate-N and potassium at the WMU-1 were 60 percent lower than the previous 5 years average. The Discharger again updated concentration limits in Spring 2016 and concentration limits for the WMU-1 were higher than last 5-year average before 2015, by 300 percent for chloride and 550 percent for nitrate-N. On 26 September 2016<sup>2</sup>, the Central Valley Water Board requested the Discharger to submit an updated WQPS report based upon concerns with elevated concentration limits proposed by the Discharger in the *Spring 2016 Semiannual Monitoring Report*. In response to the letter, the Discharger submitted a “*Statistical Analysis of Background Data and Development of Site Concentration Limits*” report in Appendix D of the *Fall 2017 Semiannual Monitoring Report*. These WDRs use concentration limits proposed in *Fall 2017 Semiannual Monitoring Report*, however Title 27 §20400 (b) allows the Central Valley Water Board to approve, modify or disapprove each proposed limit and each proposed statement. The Discharger shall submit an updated WQPS report with the statistical method to be approved by the Central Valley Water Board staff, as described in Provision H.16.E.

## GROUNDWATER CONDITIONS

69. Arsenic and iron are naturally occurring constituents in groundwater at the Union Mine Landfill site and are not used for detection monitoring for the landfill WMUs. See Finding 39.
70. During the 2017 second semiannual sampling event, concentration limit exceedances were observed for monitoring parameters in downgradient groundwater monitoring wells. The table below summarizes the monitoring parameter concentrations detected in the groundwater monitoring wells for MWU-1 and their associated concentration limits.

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<sup>2</sup> Letter “Response to Discharger Request to Reconsider Additional Approved Work, Union Mine Landfill, El Dorado County” dated 26 September 2016.



<u>Monitoring Parameter</u>	<u>MW-5</u>	<u>MW-6</u>	<u>MW-7</u>	<u>MW-9</u>	<u>MW-10</u>	<u>MW-11</u>	<u>MW-12</u>	<u>MW-13</u>	<u>UM-3</u>	<u>CL<sup>a</sup></u>
TDS	290	340	300	290	360	170	510	<b>650<sup>b</sup></b>	290	608
Bicarbonate	210	190	250	250	220	76	210	<b>500<sup>b</sup></b>	220	316.7
Alkalinity	210	190	250	250	220	76	210	<b>500<sup>b</sup></b>	220	316.7
Chloride	2.1	3.8	1.6	1.6	3.5	12	< RL	<b>55<sup>b</sup></b>	21	40
Nitrate-N	ND	ND	ND	ND	ND	ND	ND	< RL	< RL	1.74
Sulfate	37	110	27	27	70	32	32	72	39	198.3
Calcium	70	54	23	29	65	10	61	75	31	168
Magnesium	11	10	4.0	11	8.2	11	23	<b>40<sup>b</sup></b>	14	27.5
Potassium	< RL	< RL	1.2	1.4	< RL	0.41	<b>7<sup>b</sup></b>	<b>7.1<sup>b</sup></b>	1.3	4.43
Sodium	13	22	<b>62<sup>b</sup></b>	38	17	10	39	36	<b>59<sup>b</sup></b>	55.1
Arsenic	0.0033	0.0025	0.0067	0.0097	0.0067	0.0040	0.140	0.0063	0.004	-
Iron	ND	ND	< RL	0.14	0.58	4.0	0.83	0.610	ND	-

CL - Concentration Limit  
 ND - Non-detect  
 RL - Reporting limit

All concentrations are in mg/L

<sup>a</sup> Fall 2017 Semiannual Monitoring Report

<sup>b</sup> Concentration limit exceedance

71. The following table summarizes the monitoring parameter concentrations in groundwater monitoring wells for MWU-2 and their associated concentration limits.

<u>Monitoring Parameter</u>	<u>MWA</u>	<u>MWC</u>	<u>Concentration Limit<sup>a</sup></u>
TDS	200	390	576
Bicarbonate	60	140	202.8
Alkalinity	60	140	202.8
Chloride	13	54	73.3
Nitrate-N	< RL	< RL	0.97
Sulfate	86	99	156.6
Calcium	27	52	96.4
Magnesium	8.2	16	28.1
Potassium	<b>7.7<sup>b</sup></b>	3.3	3.5
Sodium	10	27	38.4
Arsenic	< RL	0.0026	-
Iron	< RL	< RL	-

ND - Non-detect  
 RL - Reporting limit

All concentrations are in mg/L

<sup>a</sup> Fall 2017 Semiannual Monitoring Report

<sup>b</sup> Concentration limit exceedance

72. VOCs were not detected in groundwater monitoring wells during the second semiannual 2017 sampling event. Acetone, reported as a laboratory contaminant, has been intermittently detected in past sampling events.
73. Based on the groundwater elevation and the monitoring well screen depth provided in Finding 56, background well MW-6 and MW-10, and detection wells MW-7, MW-9 and UM-3 are monitoring the groundwater quality in the deeper groundwater zone. The Discharger installed monitoring wells MW-12 and MW-13 to monitor the shallow groundwater in the vicinity of MW-9 in October 2016. MW-13 is 47.6 feet deep and the screen interval is 29 to 46 ft from the top of the casing. During the last sampling event, this monitoring well had 1.5 feet of water column. The depth and/or screen depth of MW-13 may not be adequate to yield a representative sample of groundwater quality. The Discharger shall monitor the groundwater elevation quarterly, and lower the screen interval as described in Provision H.16.F. Additionally, monitoring well MW-11 is 80 feet deep with a screen interval from 58 to 78 feet from the top of the casing and pump inlet depth located 77.50 feet below the top of the casing. The groundwater level in this monitoring well historically varied between 37 and 51 feet from top of casing. Title 27 §20415 (b)(1)(B) requires the monitoring points to be installed at appropriate location and depths to yield groundwater samples from uppermost aquifer that represent the quality of groundwater passing the Point of Compliance and to allow for the detection of a release from the unit. The Discharger shall analyze historical groundwater depth variation in each of the detection monitoring wells that monitor the groundwater shallow zone, and evaluate the monitoring well's depth, screen interval and pump intake depth in compliance with Title 27 requirements, as described in Provision H.16.F
74. Monitoring parameter concentration limit exceedances in down gradient monitoring wells for WMU-1 may indicate that groundwater has been impacted by a release from the WMUs at the site. The following constituent concentration limit exceedances were observed in monitoring wells during second semiannual 2017 sampling event:
- MW-7 – Sodium
  - MW-12 - Potassium
  - MW-13 – TDS, bicarbonate, alkalinity, chloride, magnesium and potassium
  - UM-3 - Sodium

Concentration limit exceedance for sodium were historically observed in monitoring wells MW-9, MW-7 and UM-3 till 2015. MW-7 shows an increasing trend for sodium concentration based on the data set from 2006 to 2017. MW-9 and UM-3 showed decreasing trends from 2006 to 2014 and show increasing trends after 2014 except the second semiannual 2017 sampling event. Elevated concentrations of chloride, magnesium and potassium were observed in the newly installed monitoring wells MW-12 and MW-13 compared to other detection wells for WMU-1. Although the chloride concentration in MW-12 was below the laboratory reporting limit during the fourth quarter 2017 sampling event, based on the detection history at this location, it may be

an anomalous detection. A timeseries plot of chloride and potassium in monitoring well UM-3 show an increasing trend.

TDS concentration exceeded EPA recommended water quality criteria for taste and odor (250 mg/L) and even the California secondary MCL for taste and odor (500 mg/L) in MW-12 and MW-13 during second semiannual 2017 sampling event. Additionally, cobalt and zinc (5-year inorganic COCs) were observed at elevated concentrations in MW-11 while other detection monitoring wells for WMU-1 show non-detects for cobalt and zinc during three sampling events from 2006 to 2016. These concentration limit exceedances, increasing trends, and elevated concentrations of monitoring parameters and 5-year inorganic COCs may indicate that groundwater has been impacted by a release from the WMUs at the site. The Discharger shall evaluate the source of these groundwater impacts, the lateral and vertical extent of the groundwater impact or release migration, and propose corrective actions as described in Provision H.16.G.

75. Based on the complex hydrogeology of the site, and activities at the site prior to the landfill, developing a conceptual site model will provide a better understanding of the site characteristics, source characteristics, release, transport mechanisms and pathways, actual/potential receptors, and site risks. This Order in Provision H.16.H requires the Discharger to submit a work plan to develop a conceptual site model to determine, but not limited to,
- The nature of shallow zone groundwater flow in the vicinity of the Facility,
  - Effect of groundwater flow, elevation and characteristics in fractured bedrock beneath the Facility,
  - Effect of groundwater flow and characteristics, if any, from historic mine related features at the Facility.
  - The nature of groundwater exhibiting surface expression within the Facility,
  - The effect of spray fields associated with the WWTP on local groundwater flow, and
  - Effect of a release, if any, from the WMU(s) on local groundwater quality, and findings and results of Provision H.16.G.
76. During the second semiannual 2017 sampling event, monitoring well MW-A showed a concentration limit exceedance for potassium. The Discharger suggested that the continuous concentration limit exceedance of potassium at monitoring well MWA is most likely due to the clay liner installed below the Class II surface impoundment. The Class II surface impoundment liner system consists of, top to bottom, a 60-mil HDPE geomembrane, two-foot clay liner and two gravel filled leak detection and collection trenches running the length of the Class II surface impoundment. The leak detection and collection layer collects liquid that may leak through the Class II surface impoundment liner system and acts as an underdrain to collect seasonally rising underlying groundwater. The Class II surface impoundment LCRS sump collects liquid from the leak

detection and collection layer. Estimated volume of liquid pumped from the Class II surface impoundment LCRS sump back to the Class II surface impoundment was 2,000 gal in 2017. The leak detection and collection layer may not be collecting all liquid coming in contact with the clay liner. Liquid not collected in the leak detection and collection layer may be passing the Class II surface impoundment LCRS sump and may cause continuous concentration limit exceedance for potassium in MW-A. Further, it is unclear whether the liquid in the Class II surface impoundment LCRS sump is leachate or groundwater. No liquid was collected in the suction lysimeters installed below the Class II surface impoundment leak detection and collection layer. The Discharger reported that the lysimeters L2N and L2S do not collect sufficient liquid for sampling because a significant capillary zone does not develop in the crushed rock fill beneath the Class II surface impoundment. An action leakage rate cannot be established for the Class II surface impoundment geomembrane (primary liner) because of the way that the Class II surface impoundment was constructed. Since there is no reliable vadose zone monitoring for the Class II surface impoundment, the Discharger shall perform a leak location test as described in Provision H.16.K, to check whether the Class II surface impoundment geomembrane liner is leaking.

77. Groundwater drains and the Pendar Tunnel were monitored per MRP R5-2006-0020; and second semiannual 2017 sampling event sampling analytical data are summarized in following table.

<u>Parameter</u>	<u>GWD-1</u>	<u>GWD-2</u>	<u>GWD-3</u>	<u>Pendar Tunnel</u>	<u>Concentration Limit (Fall 2017 Semiannual Monitoring Report)</u>
pH	6.58	6.85	Dry	Dry	-
Specific conductance, $\mu$ mhos/cm	212	375			-
TDS, mg/L	180	280			239.3
Arsenic, mg/L	< RL				0.052
Iron, mg/L	< RL				0.22
Sulfate, mg/L	57	77			76.5

RL – Reporting limit

78. Concentration limit exceedance was observed for TDS and sulfate at location GWD-2 which is the Class II Expansion landfill WMU underdrain discharge. The Class II Expansion landfill WMU underdrain was constructed to maintain 5 feet separation from base of the waste to highest anticipated elevation of underlying groundwater required by Title 27 §20240 (c). The monitoring well directly downgradient (approximately 500 feet) to the Class II Expansion landfill WMU is UM-3 which shows a concentration limit exceedance for sodium and increasing concentration trends for chloride and potassium. The Class II Expansion landfill WMU underdrain discharge may indicate that the groundwater quality underlying the Class II Expansion landfill WMU may be impacted by

the landfill waste. The GWD-2 will be sampled and analyzed for additional constituents per MRP R5-2018-0048.

79. In 2014, the Discharger was requested to sample and analyze the Springfield shaft spring which was added to Groundwater Drains and Pendar Tunnel monitoring by Central Valley Water Board staff. Second semiannual 2017 sampling event analytical data for Springfield shaft springs is summarized in the table below, with associated surface water concentration limits.

<u>Monitoring Parameter</u>	<u>SS-1</u>	<u>SS-2</u>	<u>SS-3</u>	<u>Concentration Limit (Fall 2017 Semiannual Monitoring Report)</u>
TDS	460	Not Sampled - Dry	Not Sampled - Dry	251.4
Bicarbonate	290			284.7
Alkalinity	290			284.7
Chloride	59			51.5
Nitrate-N	< RL			2.44
Sulfate	96			76.7
Calcium	93			42.6
Magnesium	26			17
Potassium	5.2			13.4
Sodium	32			32.7
Arsenic	1.4			0.11
Iron	14			0.275

All concentrations are in mg/L

### LINER PERFORMANCE DEMONSTRATION

80. On 15 September 2000 the Central Valley Water Board adopted Resolution No. 5-00-213 *Request For The State Water Resources Control Board To Review The Adequacy Of The Prescriptive Design Requirements For Landfill Waste Containment Systems To Meet The Performance Standards Of Title 27*. The State Water Board responded, in part, that “a single composite liner system continues to be an adequate minimum standard” however, the Central Valley Water Board “should require a more stringent design in a case where it determines that the minimum design will not provide adequate protection to a given body of groundwater.”
81. In a letter dated 17 April 2001, the Executive Officer notified Owners and Operators of Solid Waste Landfills that “the Board will require a demonstration that any proposed landfill liner system to be constructed after 1 January 2002 will comply with Title 27 performance standards. A thorough evaluation of site-specific factors and cost/benefit analysis of single, double, and triple composite liners will likely be necessary.”

82. The Discharger is not proposing any additional expansions of the landfill WMU at this time. If the Discharger proposes any expansion in the future they will need to perform a demonstration that any proposed liner system will comply with Title 27 performance standards.

## **CONSTRUCTION AND ENGINEERED ALTERNATIVE**

### **Landfill WMUs**

83. The existing 35.3-acre Class III Old landfill WMU is unlined and constructed over native materials. The Class III Old landfill WMU was sited above-grade over some of the mine's interconnected stopes, shafts and tunnels. This unit no longer accepts wastes.
84. According to the 2018 ROWD/JTD, 33.1 acres of the Class III Old landfill WMU have received final cover and 2.2 acres remains to be closed. The Class III Old landfill WMU was closed in portions at different time periods and the type of final cover and its components are described in Finding 7.
- 4.9 acres were closed in 1997 in accordance with CCR Title 23
  - 14.6 acres were closed in 1998 in accordance with CCR Title 14
  - 13.6 acres were close in 2007 in accordance with CCR Title 27.
85. The closed Class III Old landfill WMU was operated prior to the adoption of MSW landfill regulations that required groundwater separation from bottom of waste to the highest anticipated elevation of underlying groundwater or the unsaturated zone monitoring.
86. The LCRS of the Class III Old landfill WMU consists of toe drains consisting of a gravel-filled trench that runs the length of north and northeast perimeter of the Class III Old landfill WMU and the junction (southwest of the Class III old landfill WMU) between the Class III Old and Class II Expansion landfill WMUs. The purpose of the drain is to collect leachate generated at the toe of the Class III Old landfill WMU and transfer the leachate to the Class II surface impoundment.
87. The LFG extraction system at the closed portion of the Class III Old landfill WMU consists of 23 vertical landfill gas extraction wells, designated EW-1 through EW-23, and the landfill gas piping system. The extraction landfill gas reports to an enclosed flare and/or to three 70 kilowatt microturbines. The condensate from the landfill gas extraction is discharged to the Class II surface impoundment.
88. The Landfill gas monitoring program at the Facility consists of 7 perimeter LFG probes: GP-1, GP-2, GP-4A (shallow), GP-4B (deep), GP-5, GP-6, GP-7S (shallow), GP-7D (deep) and GP-8.
89. On 17 June 1993, the State Water Board adopted Resolution 93-62 implementing a State Policy for the construction, monitoring, and operation of municipal solid waste

landfills that is consistent with the federal municipal solid waste regulations promulgated under 40 Code of Federal Regulations section 258 (a.k.a, Subtitle D). Resolution 93-62 requires the construction of a specified composite liner system at new municipal solid waste landfills, or expansion areas of existing municipal solid waste landfills, that receive wastes after 9 October 1993. Resolution 93-62 also allows the Central Valley Water Board to consider the approval of engineered alternatives to the prescriptive standard. Section III.A.b. of Resolution 93-62 requires that the engineered alternative liner systems be of a composite design similar to the prescriptive standard.

90. Title 27, section 20080(b) allows the Central Valley Water Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Title 27, sections 20080(c)(1) or (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in Title 27, section 20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative liner system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Title 27, section 20080(b)(2).
91. Water Code section 13360(a)(1) allows the Central Valley Water Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.
92. The 6.0-acre Class II Expansion landfill WMU constructed in 1996, is lined with a composite liner system as described in Finding 7. The Class II Expansion landfill WMU has a LCRS which consists of perforated HDPE pipes that transition to a solid wall HDPE pipe which discharges leachate collected from the Class II Expansion landfill WMU to the Class II surface impoundment.
93. The depth of fluid on the landfill liner shall not exceed 30 centimeters (cm) [40 CFR §258.40 (a)(2)]. The leachate collected from the Class II Expansion landfill WMU LCRS layer is conveyed to the Class II surface impoundment by gravity flow. The Class II Expansion landfill WMU floor slope and elevation difference between the Class II Expansion landfill WMU LCRS and the discharge point at the Class II surface impoundment allow the leachate from the Class II Expansion landfill WMU to drain by gravity flow without head buildup on the primary liner. Title 27 §20340 (d) requires the LCRS to be designed and operated to function without clogging through the schedule closure of the Unit and during the post closure maintenance period. Due to the way of the Class II Expansion landfill WMU LCRS construction, it cannot be tested for its proper operation. However, the LCRS collection pipes were provided with cleanout connections. The Discharger shall propose testing method to check LCRS collection pipes for clogging, as described in Provision H.16.L.

94. The Discharger constructed a groundwater underdrain and a compacted fill layer to maintain a 5-foot minimum separation between groundwater and wastes at the side slopes of the landfill. The underdrain consists of one foot of gravel on the base and sideslopes, toe drains, and piping.
95. Title 27 section 20370(a) requires Class II units to be designed to withstand the maximum credible earthquake (MCE) without damage to foundation or containment structures. The Class II Expansion landfill WMU was designed and constructed prior to this regulatory requirement.
96. Waste types allowed to discharge to the Class II Expansion landfill WMU are given in Finding 18. The Discharger suspends waste disposal to the Class II Expansion landfill WMU during the rainy season. When the Discharger suspends waste disposal at the Class II Expansion landfill WMU, sludge from the WWTP can be hauled for off-site disposal.
97. The volumetric capacity and site life estimate provided in the JTD/ROWD document indicates that the estimated closure date of the Class II landfill WMU is 2029.

### **Class II Surface Impoundment**

98. The two-million-gallon capacity Class II surface impoundment was constructed in 1992 with a liner system consisting of, from top to bottom: a 60-mil HDPE geomembrane, a two-foot clay liner with  $1 \times 10^{-7}$  cm/sec hydraulic conductivity, and two gravel filled leachate collection trenches running the length of the surface impoundment. The two gravel filled leachate collection trenches function as a leak detection and collection layer to the Class II surface impoundment liner system and discharge collected liquid to the Class II surface impoundment LCRS sump.
99. The Class II surface impoundment shall receive the liquid wastes listed in Finding 23.
100. The liquid stored in the Class II surface impoundment is pumped and treated at the onsite WWTP which was constructed to primarily treat liquid stored in the Class II surface impoundment. The liquid waste stored in the Class II surface impoundment is currently managed through solar evaporation; and is only pumped to the WWTP for treatment when necessary to maintain the freeboard requirements, as provided in the ROWD/JTD document. The monthly volume of leachate inflow, rainfall, and liquid pumped from the Class II surface impoundment to the WWTP; and the freeboard level at the Class II surface impoundment are being monitored by the Discharger. The monthly records in the monitoring reports show that the Class II surface impoundment's capacity and freeboard requirements are adequately managed.
101. Inflow volumes: LFG condensate, liquid from septage truck washout area discharged to the Class II surface impoundment, and liquid pumped from the Class II surface impoundment LCRS sump back to the Class II surface impoundment have not been



monitored by the Discharger. The discharger shall measure and record the LFG condensate and liquid pumped from the Class II surface impoundment LCRS sump to the Class II surface impoundment as described in Facility Specification C.11.

102. The Class II surface impoundment is emptied and cleaned annually before the winter season. The solids removed from the Class II surface impoundment are disposed in Class II Expansion landfill WMU.
103. The Class II surface impoundment was not designed, constructed, or is being operated to meet the minimum of 5-foot separation from base of the waste to highest anticipated elevation of the underlying groundwater in accordance with Title 27 §20240 (c) [also CCR Title 23 Chapter 15 §2530 (c)]. However, the Class II surface impoundment was constructed with a leak detection and collection layer that functions as an engineered alternative to maintain groundwater separation. Therefore, the Discharger shall continue to remove liquid from the Class II surface impoundment LCRS sump to maintain liquid level below the leak detection and collection layer discharge pipe elevation in the Class II surface impoundment LCRS sump (Facility Specification C.18).
104. Based on information provided by the Discharger in the JTD/ROWD (2018) and site records, the Class II surface impoundment was not constructed with a LCRS that meets Title 27 §20340 requirements. Title 27 requires the LCRS to be installed between the liners for surface impoundments. Site records do not indicate that there is a secondary liner underlying the two-gravel filled leachate collection trenches that underlay the clay liner. The leachate collection trenches function as a leak detection and collection layer to the Class II surface impoundment liner system and as an underdrain to maintain the separation from the waste to the underlying groundwater.
105. Title 27 section 20370(a) requires Class II units to be designed to withstand the maximum credible earthquake (MCE) without damage to the foundation or containment structures. The Class II surface impoundment was designed and constructed prior to this regulatory requirement.
106. Title 27 section 20375(a) requires Class II surface impoundments 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 9.05 inches, and is referred to hereafter as the “design storm”. To ensure compliance with this requirement, the Discharger is required to maintain at least 33 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 2-foot freeboard level is two million gallons.
107. As described in Finding 100, the Class II surface impoundment is adequately managed to meet the freeboard requirements. If the Discharger makes any operational changes to

the Class II surface impoundment, the Discharger shall submit a detailed water balance as described in Provision H.16.M.

### **LANDFILL CLOSURE**

108. According to the 2018 JTD/ROWD, the Discharger installed a prescriptive final cover on 4.9 acres of the northern and southeastern sideslopes of the Class III landfill WMU during October of 1997 in accordance with Title 23. The final cover is described in the table to Finding 7.
109. In the fall of 1998, the Discharger installed an engineered alternative final cover on 14.6 acres of the top and eastern sideslopes of the Class III Old landfill WMU in accordance with Title 14. The engineered alternative final cover uses a GCL in place of the prescriptive one-foot thick low permeability barrier layer. The final cover is described in the table to Finding 7. The engineered alternative final cover was approved by the Regional Board in previous WDRs Order No. 98-238.
110. According to the 2018 RWD, the Discharger installed an interim cover on the 15.2 acres of the remaining 15.8-acre unclosed area of the Class III Old landfill WMU in 1992. The interim cover consisted of a one-foot foundation layer and a one-foot compacted clay with a hydraulic conductivity no greater than  $1 \times 10^{-7}$  cm/sec. The other 0.6-acre "inactive" area has received only one foot of cover soil.
111. The Discharger submitted a 14 November 2005 technical memorandum proposing an engineered alternative final cover on the unclosed portion of the Class III Old landfill WMU. The engineered alternative final cover consisted of (from bottom to top) the existing one-foot foundation layer and one-foot compacted clay layer in the interim cover, a 60-mil linear low-density polyethylene (LLDPE) geomembrane, and a one-foot thick vegetative soil layer capable of sustaining plant growth. Section 20190(a) of Title 27 allows the Regional Board to approve any alternative final cover design that it finds will continue to isolate the waste at least as well as would a prescriptive final cover design. The Discharger's proposal provided technical justification indicating that the proposed alternative cover met this requirement, including, but not limited to, the following:
  - Compacted clay layers are prone to desiccation and cracking that can greatly increase permeability.
  - Compacted clay layers are vulnerable to large increases in permeability from freeze/thaw cycles.
  - The hydraulic conductivity of an LLDPE geomembrane is  $1 \times 10^{-13}$  cm/s, which is substantially less than a compacted clay layer.
  - Compacted clay layers must be carefully moisture conditioned during construction, and many factors influence their effectiveness such as clod size, particle size, uniformity, and compaction coverage.

- Compacted clay layers are more susceptible to differential settlement than an LLDPE geomembrane.
- The cost of a compacted clay layer is much greater, especially since there is no on-site source of clay.

Based on these factors, and since the proposed final cover already included a compacted clay layer as would be required under the prescriptive final cover, the Regional Board approved the use of the proposed engineered alternative final cover for the Class III Old landfill WMU at the Union Mine Landfill.

112. In November 2007, 13.6 acres of the remaining Class III Old landfill WMU was closed in accordance with Title 27 and received the approved engineered alternative cover in Finding 111. This includes the 0.6-acre “inactive” area. The final cover is described in the table to Finding 7. The remaining 2.2 acres of the Class III Old landfill WMU will be eventually covered by waste as part of the development of the Class II Expansion landfill WMU active disposal area. The estimated date of closure of the Class II Expansion landfill WMU is 2029.
113. Title 27, section 21090 provides the minimum prescriptive final cover components for landfills consisting of, in ascending order, the following layers:
- Two-foot soil foundation layer.
  - One-foot soil low flow-hydraulic conductivity layer, less than  $1 \times 10^{-6}$  cm/s or equal to the hydraulic conductivity of any bottom liner system.
  - Geomembrane layer (this layer is required for composite-lined landfills for equivalency to bottom liner).
  - One-foot soil erosion resistant/vegetative layer.
114. Title 27 allows engineered alternative final covers provided the alternative design will provide a correspondingly low flow-through rate throughout the post-closure maintenance period.
115. The February 2016 *Final Closure Plan* provided the proposed preliminary closure design for the Class II Expansion landfill WMU and the remaining 2.2 acres of Class III Old landfill WMU with the interim cover. The proposed final cover is the same engineered alternative design as described in Finding 111. The proposed preliminary closure plan does not clearly describe the final cover for the Class II Expansion landfill WMU which is an active unit and does not have an interim cover. Further, given that the estimated life of the 6.0-acre Class II Expansion landfill WMU was over 11 years in 2018, closure of this unit may be many years away. Therefore, this order requires the Discharger to submit updated preliminary closure plan as described in Provision H.16.C. This Order continues to require a prescriptive final cover for the Class II Expansion landfill that includes a geomembrane layer in addition to the components in the proposed alternative cover.

## LANDFILL POST-CLOSURE MAINTENANCE

116. The Discharger submitted a 2007 *Postclosure Maintenance Plan* for the closed portion of the Class III Old landfill WMU and February 2016 *Final Postclosure Maintenance Plan* for closure and post-closure maintenance of remaining Class III Old landfill WMU and the Class II Expansion landfill WMU. 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 the final cover, drainage features, LCRS, groundwater monitoring wells, unsaturated zone monitoring points, access roads, landfill gas system, and site security. The plan will be implemented for a minimum period of 30 years or until the waste no longer poses a threat to environmental quality, whichever is greater.
117. The condition and performance of the landfill WMU cover is one of the primary factors contributing to leachate generation from the waste pile in the landfills. Portions of the Class III Old landfill WMU were closed in different time periods and per the regulatory requirements at the time of closure. Portions of the Class III Old landfill WMU closed in 1997 and 1998, predate the cover stability analysis required by the Title 27. The portion of Class III Old landfill WMU closed in 2007 was in accordance with Title 27 requirements. Further, the Class III Old landfill WMU predated the regulatory requirements for minimum separation to bottom of waste from highest anticipated elevation of underlying groundwater and the unsaturated zone monitoring. It is unknown whether the groundwater is in contact with the waste pile at any portion of the Class III Old landfill WMU. During the 21 November 2017 site inspection by Central Valley Water Board staff, slumps or slides, settlement, tire ruts and clusters of animal burrows were observed on the Class III Old landfill WMU cover. The Discharger shall evaluate the final cover condition and performance as described in Provision H.16.I and shall perform cover repair work in accordance with Title 27 §21090 (a)(4)(C).
118. 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.
119. 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

120. Title 27, sections 21820 and 22206 require a cost estimate for landfill closure. The cost estimate must be equal to the cost of closing the landfill at the point in its active life when

the extent and manner of operation would make closure the most expensive. When closing units in phases, the estimate may account for closing only the maximum area or unit of a landfill open at any time. The Discharger's February 2016 *Final Closure Plan* includes a cost estimate for remaining Class III Old landfill WMU and the Class II landfill WMU closure. The lump sum estimate is for the cost to close largest future area needing closure at any one time. The total amount of the closure cost estimate in 2015 dollars is \$2.4 million. This Order requires that the Discharger maintain financial assurance with the California Department of Resources Recycling and Recovery (CalRecycle) in at least the amount of the closure cost estimate. The Discharger maintains a Pledge of Revenue Agreement as the financial assurance mechanism for post-closure maintenance.

121. 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.2
122. Title 27, sections 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The Discharger's February 2016 *Post Closure Maintenance Plan* includes a cost estimate for closed Class III Old landfill WMU, remaining Class III Old landfill WMU and the Class II Expansion landfill WMU post-closure maintenance. The amount of the cost estimate for post-closure maintenance in 2015 dollars is \$ 14.88 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. Discharger maintains a Pledge of Revenue Agreement as the financial assurance mechanism for post-closure maintenance.
123. 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.

124. The Discharger did not submit a cost estimate for corrective action of all known or reasonably foreseeable releases and corrective action of Non-water release for the partially closed Class III Old landfill WMU. This Order requires that the Discharger to submit a cost estimate for corrective action and maintain financial assurance with the CalRecycle in at least the approved amount, adjusted annually for inflation as described in Provision H.16.N
125. The Discharger submitted a 2015 cost estimate of \$288,800 for corrective action of all known or reasonably foreseeable releases and a 2015 cost estimate of \$143,000 for Non-water release corrective action for Class II Expansion landfill WMU. This Order requires that the Discharger maintain financial assurance with the CalRecycle in at least the amount of \$288,800 (2015 dollars) adjusted annually for inflation. Discharger maintains a Pledge of Revenue Agreement as the financial assurance mechanism for water release corrective actions.
126. Title 27, section 22222 requires a cost estimate for corrective action of all known or reasonably foreseeable releases from units which the CalRecycle does not require financial assurances for. The Discharger did not submit a cost estimate for corrective action of all known or reasonably foreseeable releases and corrective action of Non-water release for the Class II surface impoundment. This Order requires that the Discharger to submit a cost estimate for corrective action and maintain financial assurance with the RWQCB in at least the approved amount (greater of all known or reasonably foreseeable releases or Non-water release), adjusted annually for inflation as described in Provision H.16.O.

### **CEQA AND OTHER CONSIDERATIONS**

127. On 10 May 1994, the El Dorado County Board of Supervisors certified an April 1994 addendum to the January 1992 final environmental impact report for the Facility. Both the January 1992 final EIR and the April 1994 addendum were for expansion and closure of the Facility. A Notice of Determination was filed on 27 April 1992 in accordance with the California Environmental Quality Act (Public Resources Code section 21000 et seq.) and CEQA guidelines (Title 14, section 15000 et seq.). EIR concluded that “the proposed project would result in long-term and cumulative impacts to hydrologic resources due to the existing landfill activities, presence of mine shafts, alteration of natural drainage patterns, erosion control, and water quality contamination.” The EIR also stated that “the effects can be reduced to below levels of significance through a number of proposed design, monitoring, control, and mitigation measures. The Central Valley Water Board considered the environmental impact report and incorporated mitigation measures from the EIR into these waste discharge requirements designed to prevent potentially significant impacts to design facilities and to water quality, including, but not limited to:
  - Monitoring of groundwater, surface water, and mining features as required in monitoring and reporting as required in MRP No. R5-2006-0020.

- A requirement that the Discharger maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the waste management units.
- Requirements for composite liner systems and leachate collection for the Class II landfill and surface impoundment.
- Requirements for final cover systems for all closed landfill units.
- Requirements for precipitation and drainage control systems that are designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 1,000-year, 24-hour precipitation conditions for Class II WMUs and 100-year, 24-hour precipitation conditions for Class III WMUs.

128. 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.

129. This order implements:

- The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition;
- The prescriptive standards and performance goals of California Code of Regulations, title 27, section 20005 et seq., effective 18 July 1997, and subsequent revisions;
- State Water Board Resolution 93-62, Policy for Regulation of Discharges of Municipal Solid Waste, adopted 17 June 1993, and revised on 21 July 2005.
- The applicable provisions of Title 40 C.F.R. section 258 "Subtitle D" federal regulations as required by State Water Board Resolution 93-62.

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

- 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."
- 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."

131. 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.)

132. 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.
133. Anti-Degradation Policy does not apply to the discharge of waste to Union Mine 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.
134. 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.
135. The technical reports required by this Order and the attached "Monitoring and Reporting Program R5-2018-0048" 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**

136. 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.
137. 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.

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

139. 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](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 R5-2006-0020 is rescinded except for purposes of enforcement, and that El Dorado County and 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 waste to the closed portion of Class III Old landfill WMU is prohibited.
2. The discharge of '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 wastes outside of a WMU or portions of WMU 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. The direct discharge of wastes to surface waters, surface water drainage courses or groundwater is prohibited.
6. The unauthorized discharge of liquid from the Class II surface impoundment is prohibited.

7. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reactions, heat, or pressure, fire or explosion, toxic by-products, or reaction products which in turn:
  - a. Require a higher level of containment than provided by the unit;
  - b. Are restricted "hazardous wastes"; or
  - c. Impair the integrity of containment structures is prohibited.
8. Operation of any equipment on the closed landfill WMUs that will likely damage the landfill cover is prohibited.
9. Any damage to the exposed geomembrane liner is prohibited.
10. The cessation of any corrective action measure, if any, 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 Board staff.
11. The Discharger shall comply with all Standard Prohibitions listed in Section C of the Landfill SPRRs and Industrial SPRRs which are attached hereto and made part of this Order by reference.

## **B. DISCHARGE SPECIFICATIONS**

1. The discharge to landfill units of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids), except dewatered sewage or water treatment sludge as provided in this order, is prohibited.
2. The discharge of solid waste containing free liquid or moisture in excess of the waste's moisture holding capacity to landfill units is prohibited.
3. The wastes allowed to be discharged to the Class II Expansion landfill unit are:
  - a. Non-hazardous, treated and dewatered sludge from the onsite septage and leachate treatment plant,
  - b. Non-hazardous municipal solid waste generated from onsite facilities, and
  - c. Solids from the Class II surface impoundment.
4. 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 from the Class III Old landfill WMU toe drains,
  - b. Leachate collected from the active Class II Expansion landfill WMU LCRS,

- c. LFG condensate collected from the LFG recovery system on the Class III Old landfill WMU,
  - d. Liquid collected from the Class II surface impoundment LCRS,
  - e. Runoff from the septage truck washout area, and
  - f. Direct rainfall
5. The waste discharges shall remain within the designated disposal areas at all times.
  6. The Discharger may not use any material as alternative daily cover (ADC) until the Discharger has demonstrated that it meets the requirements in Title 27, section 20705.
  7. The Discharger shall use approved ADC only in internal areas of the landfill that do not drain outside of the limits of the contiguous landfill units unless the Discharger demonstrates that runoff from the particular ADC is not a threat to surface water quality and the demonstration has been approved in writing. This demonstration may take removal of sediment or suspended solids into account for landfills where surface water drains to a sedimentation basin.
  8. 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.
  9. The Discharger shall comply with all Standard Discharge Specifications listed in Section D of the Landfill SPRRs and Industrial SPRRs which are attached hereto and made part of this Order by reference.

### **C. FACILITY SPECIFICATIONS**

1. Annually, prior to the anticipated rainy season, no later than October 31, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the Facility and to prevent surface drainage from contacting or percolating through wastes; and reported in compliance with MRP R5-2018-0048.
2. The Discharger shall immediately notify the Central Valley Water Board of any flooding, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
3. The Discharger shall comply with all Standard Facility Specifications listed in Section E of the Landfill SPRRs and Industrial SPRRs which are part of this Order.

### Landfill WMUs

4. Public contact with wastes and leachate shall be precluded through such means as fences, signs, and other acceptable alternatives.
5. Dewatered sewage or water treatment sludge may be accepted for disposal in the Class II landfill if the sludge contains at least 20 percent solids (primary sludge) or 15 percent solids (secondary sludge), is mixed with refuse or soil at a minimum solids-to-liquid ratio of 5:1 by weight, and does not exceed the initial moisture holding capacity of the solid waste.
6. LCRSs shall be maintained to collect twice the anticipated daily volume of leachate generated by each landfill WMU and to prevent the buildup of hydraulic head on the underlying liner at any time. The depth of the fluid on any portion of the Class II Expansion landfill WMU shall not exceed 30 centimeters. The Discharger shall comply with Facility Specification E.13 of Landfill SPRRs.
7. The Class II Expansion landfill WMU LCRS pipe shall be operated without clogging, to prevent leachate head buildup on the primary liner due to capacity loss of the LCRS pipes.
8. Any proposed change in sludge use or disposal practice shall be reported to the Executive Officer at least 90 days in advance of the change

### Class II Surface Impoundment

9. The Class II surface impoundment shall have sufficient storage capacity for wastewater flows to the impoundment from the sources in Discharge Specification B.4, precipitation from a 100-year wet season of 73.2 inches distributed at least monthly, a 1,000-year 24-hour storm event (design storm) of 9.05 inches, and shall maintain at least two (2.0) feet of freeboard at all times. To ensure compliance with this requirement, the Discharger shall maintain at least 33 inches 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.
10. In the event of freeboard level is less than 2-feet, 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. The Discharger shall **immediately** take measures to regain surface impoundment capacity in the event that freeboard levels are equal to or less than 33 inches (2.0 feet plus the amount needed to hold the design storm).
11. The Discharger shall measure, monitor and record all inflows, except septage truck washout liquid, to the Class II surface impoundment. Historically, LFG condensate, liquid from the septage truck washout area and the liquid from the Class II surface

impoundment LCRS sump were not measured. The Discharger shall install a means to measure the inflow, separately, to the Class II surface impoundment as described in Provision H.16.J and report monthly inflows in the semiannual monitoring report.

12. By 1 November each year, available capacity in the Class II surface impoundment shall at least equal the volume necessary to comply with Discharge Specifications B.4.
13. The Class II surface impoundment shall be managed to prevent breeding of mosquitoes.
14. The dissolved oxygen content of the Class II surface impoundment and the storm water holding and settling basins shall not be less than 1.0 mg/l.
15. The Discharger shall record onsite rainfall to track the magnitude of storm events and shall record surface impoundment freeboard levels in accordance with the attached MRP R5-2018-0048.
16. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.
17. The surface impoundment(s) shall be designed, constructed and maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the impoundments and by wave action at the water line.
18. Leachate removed from a surface impoundment's leak detection and collection system shall be discharged to the impoundment from which it originated.
19. Liquid level in the Class II surface impoundment LCRS sump shall be maintained at or below the leak detection and collection layer discharge pipe elevation in the Class II surface impoundment LCRS sump.
20. If liquid is detected in the suction lysimeter of a Class II surface impoundment may be 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 R5-2018-0048.
  - 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.

21. 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.
22. The Discharger shall update the water balance model if additional inflows are discharged to the Class II surface impoundment, such as groundwater drains, springs, or the model assumptions no longer represent site conditions
23. Solids that accumulate in the Class II surface impoundment shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for surface impoundment leachate and for the discharge of wastes. The removed solids from the Class II surface impoundment shall be disposed in Class II Expansion landfill WMU.
24. 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. CONSTRUCTION SPECIFICATIONS**

1. Municipal solid waste shall be discharged to an area equipped with a containment system which meets the minimum requirements of Title 27 for liners, covers, and leachate collection systems.
2. The Discharger shall obtain revised WDRs prior to construct any new landfill WMU or an expansion to an existing landfill WMU.
3. Each landfill unit phase constructed after the effective date of this Order shall be designed and constructed in accordance with Title 27 and this Order and approved by Regional Board staff prior to operation. Ninety days prior to the beginning of construction for each new construction phase, a Final Design Report shall be submitted to Regional Board staff for review and approval and shall include, but not be limited to, the engineered design plans, the contract specifications, a construction quality assurance (CQA) plan to verify that construction specifications will be met, and a revised water quality monitoring plan. Approval of the final design report shall be obtained from Regional Board staff prior to the construction of the landfill liner or cover. A final construction report shall be submitted for approval by Regional Board staff after each phase of construction and prior to the discharge of waste into the constructed phase. For cover construction, the final construction report shall be submitted within ninety days of completion of construction for approval by Regional Board staff. The final construction report shall include, but not be limited to, as-built plans, a CQA report with a written summary of the CQA program and all test results,

analyses, and copies of the inspector's original field notes, and a certification as described in the Standard Provisions and Reporting Requirements.

4. The Discharger shall comply with all Standard Construction Specifications listed in Section F of the Landfill SPRRs and Industrial SPRRs which are attached hereto and made part of this Order by reference.
5. The Discharger shall comply with all Storm Water Provisions listed in Section L of the Landfill SPRRs and Industrial SPRRs which are attached hereto and made part of this Order by reference.

#### **E. CLOSURE AND POST-CLOSURE MAINTENANCE SPECIFICATIONS**

1. The Discharger shall submit a final or partial final closure and post-closure maintenance plan at least two years prior to proposed closure of any portion of the landfill in accordance with requirements in Section G of the Standard Closure and Post-Closure Specifications in the Landfill SPRRs.
2. The Discharger shall obtain revised WDRs prior to closure with any other final cover design than the design or designs approved in this Order, except when modifications are necessary for problematic areas of the final cover needing repair so long as the barrier layer (e.g., geomembrane, GCL, and/or compacted clay layer) remains intact, and the modifications are approved by Central Valley Water Board staff.
3. The Discharger shall close the landfill with side slopes at steepness of 3H:1V or less, and top deck areas shall be sloped at three percent or greater.
4. The Discharger shall install an active landfill gas extraction system for the closed landfill unit during landfill closure, and landfill gas shall be extracted 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.
5. The Discharger shall seal the edges of the final cover by connecting the cover geomembrane to the liner geomembrane.
6. The Discharger shall test the critical interfaces of the final cover in a laboratory to ensure minimum design shear strengths are achieved and include the results in the final documentation report.
7. 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 during the period the vegetation is being established.

8. The Discharger shall extract landfill gas from closed Class III Old landfill WMU 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.
9. During the closure and post-closure maintenance period, the Discharger shall conduct routine maintenance of the final cover, areas with interim cover, the precipitation and drainage control facilities, the groundwater, unsaturated zone and landfill gas monitoring systems, the landfill gas extraction system, and any facilities associated with corrective action.
10. The Discharger shall, in a timely manner, repair any areas of the final cover that have been damaged by erosion, cracking, differential settlement, subsidence or any other causes that could allow ponding of surface water or percolation of surface water into the wastes.
11. The Discharger shall conduct an annual test of all LCRS's to ensure they are functioning as designed.
12. The Discharger shall perform all post-closure maintenance activities specified in the Facility's Final Closure and Post-Closure Maintenance Plan that are not specifically referred to in this Order.
13. At closure of the Class II surface impoundment (or) waste pile, the Discharger shall clean-close the unit(s) 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 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.16.D.
14. Prior to closure, the Discharger shall submit a Final Closure and Post-Closure Maintenance Plan prepared by a California-registered civil engineer or certified engineering geologist, and that contains all applicable information required in Title 27 section 21769.
15. The Discharger shall comply with all Standard Closure and Post-Closure Specifications listed in Section G and all Standard Construction Specifications that are applicable to closure in Section F of the Landfill SPRRs and Industrial SPRRs which are attached hereto and made part of this Order by reference.



## F. FINANCIAL ASSURANCE SPECIFICATIONS`

1. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for closure and post-closure maintenance for the landfill WMUs in at least the amounts of \$17.2 million (\$2.4 million closure cost plus 14.88 million post-closure maintenance cost in 2015 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 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 2018. 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.16.O.
3. The Discharger shall update the preliminary closure and post-closure maintenance plan (PCPCMP) any time there is a change that will increase the amount of the closure and/or post-closure maintenance cost estimate. The updated PCPCMP shall be submitted to the Central Valley Water Board, the Local Enforcement Agency, and CalRecycle. The PCPCMP 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 close each Unit, to prepare detailed design specifications, to develop the final closure and 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.
4. This Order requires the Discharger to submit a cost estimate for corrective action of all known or reasonably foreseeable releases and corrective action of Non-water release for the partially closed Class III Old landfill WMU, and maintain financial assurance with the CalRecycle in at least the approved amount, adjusted annually for inflation as described in Provision H.16.N.
5. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in at least the amount of the annual inflation-adjusted cost estimate of \$288,800 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.

6. The Discharger shall submit corrective action cost estimate for the Class II surface impoundment to conduct corrective activities pursuant to Title 27 sections 22222 to Central Valley Water Board for review and approval by 31 December 2018. The Discharger shall obtain and maintain assurance of financial responsibility with Central Valley Water Board named as beneficiary, for the Class II surface impoundment corrective action in at least the approved amount of the current closure cost estimate, adjusted for inflation annually, as detailed in Provision H.16.O.
7. By **1 June** of each year, the Discharger shall submit a report to the Central Valley Water Board that reports the amounts of the Guarantees and the adjustments to account for inflation in accordance with Title 27 section 22236.
8. The Discharger shall comply with all Standard Financial Assurance Specifications listed in Section H of the Landfill SPRRs and Industrial SPRRs which are attached hereto and made part of this Order by reference.

## **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) R5-2018-0048, and the Standard Monitoring Specifications listed in Section I of the SPRRs which are attached hereto and made part of this Order by reference.
2. The Discharger shall, for any landfill WMU in a corrective action monitoring program, comply with the corrective action monitoring program provisions of Title 27, MRP R5-2018-0048, and the Standard Monitoring Specifications listed in Section I of Landfill SPRRs which are attached hereto and made part of this Order by reference.
3. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP R5-2018-0048, and the Landfill SPRRs and Industrial SPRRs which are attached hereto and made part of this Order by reference.
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 R5-2018-0048.
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 R5-2018-0048 and the Standard Monitoring Specifications in Section I of the

Landfill SPRRs and Industrial SPRRs which are attached hereto and made part of this Order by reference.

6. As specified in MRP R5-2018-0048, 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. The Discharger shall comply with all Standard Monitoring Specifications and Response to a Release specifications listed in Sections I and J of the Landfill SPRRs and Industrial SPRRs which are attached hereto and made part of this Order by reference.

## **H. PROVISIONS**

1. The Discharger shall comply with the Standard Provisions and Reporting Requirements, dated November 2013, which are attached hereto and made part of this Order by reference. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
2. Pursuant to Water Code section 13267, the Discharger shall comply with Monitoring and Reporting Program No. R5-2018-0048, which is attached to and made part of this Order. This compliance includes, but is not limited to, maintenance of waste containment facilities and precipitation and drainage controls and monitoring groundwater, the unsaturated zone, and surface waters throughout the active life of the waste management units and any applicable post-closure maintenance period. A violation of Monitoring and Reporting Program No. R5-2018-0048 is a violation of these waste discharge requirements.
3. The Discharger shall maintain a copy of this Order at the Facility, including the MRP R5-2018-0048 and the Landfill SPRRs 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.
4. The Discharger shall maintain legible records of the volume and type of each waste discharged at each WMU and the manner and location of the discharge. Such records shall be maintained at the Facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Central Valley Water Board and of the State Water Resources Control Board, copies of these records shall be sent to the Central Valley Water Board upon request.
5. In the event of any change in control or ownership of the Facility or disposal areas, the Discharger must notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office. To assume

operation as Discharger under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of General Provision K.2.e in the Standard Provisions and Reporting Requirements and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.

6. The Discharger shall provide proof to the Central Valley Water Board **within sixty days after completing final closure** that the deed to the Facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:
  - a. The parcel has been used for disposal of wastes.
  - b. Land use options for the parcel are restricted in accordance with post-closure land uses set forth in any post-closure plan (if applicable).
  - c. In the event that the Discharger defaults on carrying out either any corrective action needed to address a release, groundwater monitoring, or any post-closure maintenance (if applicable), then the responsibility for carrying out such work falls to the property owner
7. The Discharger shall comply with all applicable provisions of Title 27 and Subtitle D that are not specifically referred to in this Order.
8. The Discharger shall comply with MRP R5-2018-0048, which is incorporated into and made part of this Order by reference.
9. The Discharger shall comply with the applicable portions of the Standard Provisions and Reporting Requirements for Waste Discharge Requirements for Nonhazardous Solid Waste Discharges Regulated by Subtitle D and/or Title 27, dated December 2015, which are attached hereto and made part of this Order by reference.
10. 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.
11. 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.

12. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code sections 6735, 7835, and 7835.1. As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.
13. In the event of any change in ownership of this waste management Facility, the Discharger shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Central Valley Water Board.
14. The Central Valley Water Board will review this Order periodically and may revise requirements when necessary.
15. This Order shall take effect upon the date of adoption.
16. The Discharger shall complete the tasks contained in these waste discharge requirements in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
<p><b>A. Construction Plans</b></p> <p>Submit construction and design plans for review and approval. (see all Construction Specifications in Section D, above and Section F of the SPRRs.)</p>	<p><b>90 days prior to proposed construction</b></p>
<p><b>B. Construction Report</b></p> <p>Submit a construction report for review and approval upon completion demonstrating construction was in accordance with approved construction plans (see Standard Construction Specification F.27 in the SPRRs).</p>	<p><b>60 days prior to proposed discharge</b></p>
<p><b>C. Final Closure Plans for Class II Expansion Landfill WMU and Remaining Class II Old Landfill WMU</b></p> <p>Submit a final or partial final closure and post-closure maintenance plan, design plans, and CQA plan for review and approval (see all Closure and Post-Closure Specifications in Section E, above and Section G of the SPRRs).</p>	<p><b>Two years prior to closure</b></p>

<p><b>D. Final Closure Plans for Class II Surface Impoundment</b></p> <p>Submit a final or partial final closure and post-closure maintenance plan, design plans, and CQA plan for review and approval (see all Closure and Post-Closure Specifications in Section E, above and Section G of the SPRRs).</p>	<p><b>90 days prior to proposed closure</b></p>
<p><b>E. Updated WQPS Report</b></p> <p>The Discharger shall submit an updated WQPS report upon approval of proposed statistical method and concentration limits provided in Appendix D of <i>Fall 2017 Semiannual Monitoring Report</i>. The updated WQSP report shall include, but not limited to:</p> <ol style="list-style-type: none"> <li>1. Monitoring programs</li> <li>2. Monitoring points for each monitoring medium and point of compliance</li> <li>3. Constituents of concern</li> <li>4. Sampling collection and analysis plan.</li> <li>5. Concentration limit</li> <li>6. Statistical procedure including approach to data analysis, data management and statistical method</li> <li>7. Verification retesting procedures to confirm measurably significant evidence of a release</li> </ol>	<p><b><i>Semiannual Monitoring Report</i> following the approval of statistical method by the Central Valley Water Board staff</b></p>
<p><b>F. Evaluation of Groundwater Monitoring Wells</b></p> <p>Title 27 §20415 (b)(1)(B) requires the monitoring points to be installed at appropriate location and depths to yield groundwater samples from uppermost aquifer that represent the quality of groundwater passing the Point of Compliance and to allow for the detection of a release from the unit. Detection monitoring wells MW-11, MW-12 and MW-13 monitor the water quality in groundwater shallow zone. The Discharger shall submit a report that includes, but not limited to:</p> <ol style="list-style-type: none"> <li>1. An analysis of historical groundwater depth variation in each of the detection monitoring wells,</li> </ol>	<p><b>1 February 2019</b></p>

<p>2. An evaluation of the monitoring well's depth, screen interval and pump intake depth for compliance with Title 27 requirements</p> <p>If applicable, a work plan to correct the screen and pump intake depth of detection monitoring wells to meet Title 27 requirements.</p>	
<p><b>G. Groundwater Quality Impact Evaluation</b></p> <p>The monitoring parameter concentration limit exceedances and elevated concentrations in downgradient groundwater monitoring wells may be an indication of a release from the WMUs at the site. The Discharger shall evaluate the groundwater quality and submit a report which includes, but not limited to, the following:</p> <ol style="list-style-type: none"> <li>1. An evaluation of potential sources and a description of the source determined to be the cause of the observed constituent's concentration limit exceedance and elevated concentrations.</li> <li>2. An investigation work plan to characterize the lateral and vertical extent of contamination if the evaluation indicates a release from the Union Mine Landfill site.</li> <li>3. A corrective action(s) plan to control migration of the release and reduce concentrations to below water quality objectives.</li> </ol>	<p><b>1 February 2019</b></p>
<p><b>H. Conceptual Site Model Work Plan</b></p> <p>Based on the complex hydrogeology of the site and the activities at the site prior to the landfill, the Discharger shall submit a work plan to develop a Conceptual Site Model to determine, but not limited to:</p> <ol style="list-style-type: none"> <li>1. The nature of shallow zone groundwater flow in the vicinity of the Facility.</li> <li>2. Effect of groundwater flow, elevation and characteristics in fractured bedrock beneath the Facility.</li> <li>3. Effect of groundwater flow and characteristics, if any, from historic mine related features at the Facility.</li> <li>4. The nature of groundwater exhibiting surface expression within the Facility.</li> </ol>	<p><b>31 December 2018</b></p>





<p>flow returned to the Class II surface impoundment from the LCRS sump.</p>	
<p><b>K. Class II Surface Impoundment Leak Location Test</b></p> <p>The liquid collected in the Class II surface impoundment LCRS sump indicates that the Class II surface impoundment liner system is leaking. The Discharger shall submit a Work Plan to conduct a leak location detection 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.</p> <p>The Discharger shall conduct the leak location test and submit a report summarizing the leak location test results, analysis and evaluation of the results, and recommendations to stop leak(s) (upon detection) through the primary liner.</p> <p>The Discharger shall perform necessary work to stop leak(s) through the primary liner at the Class II surface impoundment and submit a construction report within one month of leak repair work completion.</p>	<p><b>31 October 2018</b></p> <p><b>Within 4 months from work plan approval by the Central Valley Water Board staff</b></p> <p><b>Within 6 months from leak location test.</b></p>
<p><b>L. Class II Expansion Landfill WMU LCRS Testing</b></p> <p>Title 27 §20340 (d) requires LCRSs shall be designed and operated to function without clogging through the scheduled closure of the Unit and during the post closure maintenance period. Due to the way of Class II Expansion landfill WMU LCRS construction, annual LCRS testing cannot be performed. However, the LCRS collection pipes were constructed with cleanouts. The Discharger shall propose testing method(s) and testing frequency for clogging of the LCRS collection pipes, for Central Valley Water Board staff’s review and approval. Upon approval of the testing method, the Discharger shall perform LCRS collection pipe testing at specified frequency.</p>	<p><b>31 December 2018.</b></p>
<p><b>M. Class II Surface Impoundment Water Balance</b></p>	

<p>The Discharger shall submit a detailed water balance that takes the following factors into account:</p> <ol style="list-style-type: none"> <li>1. The average daily base wastewater flows from all sources to the Class II surface impoundment.</li> <li>2. Evaporation losses from the Class II surface impoundment, and are distributed monthly.</li> <li>3. The 100-year wet season (73.2 inches) distributed monthly in accordance with average monthly rainfall patterns.</li> <li>4. The total surface area of the impoundment, acres.</li> <li>5. Additional capacity required to contain the design storm event and translated to an additional inches/foot of freeboard that needs to be maintained to accommodate the design storm event.</li> <li>6. The capacity of the lined impoundment at the two-foot freeboard level.</li> <li>7. Loss of capacity due to solids accumulation in the Class II surface impoundment.</li> </ol>	<p><b>60 days prior to operational changes.</b></p>
<p><b>N. Class III Old Landfill WMU Corrective Action Financial Assurance</b></p> <p>Title 27 sections 22100(b) 22101 and 22221 require corrective action cost estimates and assurance of financial responsibility to initiate and complete corrective action for known or reasonably foreseeable releases of waste, or Non-water release. The Discharger shall submit corrective action cost estimate for the Class III Old landfill WMU to initiate and complete corrective actions to CalRecycle for review and approval. Upon approval, the Discharger shall obtain and maintain assurance of financial responsibility with CalRecycle named as beneficiary, for the Class III Old landfill WMU corrective action in at least the approved amount of the current closure cost estimate, adjusted for inflation annually.</p>	<p><b>1 February 2019</b></p>
<p><b>O. Class II Surface Impoundment Financial Assurance</b></p> <p>Title 27 section 21820 and 22207 require closure cost estimate and assurance of financial responsibility for surface impoundments to ensure closure of surface</p>	<p><b>Cost estimate by 31 December 2018 and establish financial</b></p>

<p>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.</p> <p>Title 27, section 22222 requires a cost estimate for corrective action of all known or reasonably foreseeable releases from units which the CalRecycle does not require financial assurances for. The Discharger shall submit a corrective action cost estimate for the Class II surface impoundment to conduct corrective action 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 corrective action in at least the approved amount of the current corrective action cost estimate, adjusted for inflation annually.</p>	<p><b>assurance within two months from approval of cost estimate by Central Valley Water Board staff.</b></p>
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17. The Discharger shall comply with all General Provisions listed in Section K of the SPRRs which are part of this Order.

18. 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>, 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:

[http://www.swrcb.ca.gov/ust/electronic\\_submittal/index.shtml](http://www.swrcb.ca.gov/ust/electronic_submittal/index.shtml)

Notification of the Geotracker upload shall be emailed to the Central Valley Water Board at: [centralvalleysacramento@waterboards.ca.gov](mailto: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:

Attention:	Title 27 Compliance & Enforcement Unit Or Title 27 Permitting Unit
Report Title	
Geotracker Upload ID	
Discharger name:	El Dorado County
Facility name:	Union Mine Landfill
County:	El Dorado County
CIWQS place ID:	269028

I, PATRICK PULUPA, 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 31 May 2018.

*ORIGINAL SIGNED BY*

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PATRICK PULUPA, Executive Officer

MP