

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2019-0032

WASTE DISCHARGE REQUIREMENTS
FOR
COUNTY OF SISKIYOU
BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION
SISKIYOU COUNTY

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

1. The County of Siskiyou (Discharger) owns and operates the Black Butte Class III Municipal Solid Waste Landfill (Facility) approximately two miles northwest of the City of Mount Shasta, in Section 32, T41N, R4W, MDB&M, as shown in **Attachment A**. The Facility is a municipal solid waste (MSW) landfill regulated under authority given in Water Code section 13000 et seq.; California Code of Regulations, title 27 (Title 27), section 20005 et seq.; and 40 Code of Federal Regulations section 258 (a.k.a, "Subtitle D") in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62.
2. The following documents are attached to this Order and hereby incorporated into and made a part of this Order by reference:
 - a. Attachment A – Site Location Map
 - b. Attachment B – Site Plan
 - c. Information Sheet
 - d. Standard Provisions and Reporting Requirements dated April 2016 (SPRRs).
3. The Facility is on a 61-acre property at 3710 Spring Hill Road, Mount Shasta. The landfill area is approximately 29 acres and consists of a single closed unlined landfill unit, waste management unit (WMU) WMU-1. Additionally, the site previously contained two septage ponds [former WMU-2] and a sludge-drying surface impoundment [former WMU-3] which have been clean-closed. The existing permitted landfill area is shown in **Attachment B**. The Facility is comprised of Assessor's Parcel Number (APN) 21-60-050.
4. On 1 June 2018, the Discharger submitted an amended Report of Waste Discharge (ROWD) as part of the Joint Technical Document (JTD) for the Facility. The information in the ROWD/JTD has been used in updating these waste discharge requirements (WDRs). The ROWD contains the applicable information required in Title 27. The ROWD/JTD and supporting documents contain information related to this update of the WDRs including:
 - a. The final closure and capping of WMU-1 in 2003
 - b. Clean-closure of WMU-2 in 2002

c. Construction and operation of a transfer station since 2004

5. On 1 March 2002, the Central Valley Water Board issued Order No. R5-2002-0038 in which WMU-1 was classified as a Class III unit for the discharge of MSW. This Order continues to classify WMU-1 as a Class III unit in accordance with Title 27.
6. The existing landfill unit authorized by this Order is described as follows:

<u>Unit</u>	<u>Area</u>	<u>Liner/LCRS¹ Components</u>	<u>Unit Class & Status</u>
WMU-1	29 acres	Unlined with LCRS installed in a 14-inch thick gravel bed at the south-central portion of the unit	Class III, closed

¹ LCRS – Leachate collection and removal system

7. On-site facilities at the Black Butte Class III Municipal Solid Waste Landfill include: groundwater monitoring wells, a leachate collection and sampling point, a perimeter gas monitoring network, a passive landfill gas venting system, a greenwaste/woodwaste and scrap metal storage area, and a transfer station. The transfer station was completed in June 2004, and MSW is currently transported to Dry Creek Landfill near Medford, Oregon.
8. 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 SPRRs. Monitoring and reporting requirements are included in the Monitoring and Reporting Program (MRP) R5-2019-0032 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.
9. 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 (LEA) in charge of implementing CalRecycle’s regulations.

WASTE CLASSIFICATION AND UNIT CLASSIFICATION

10. The Facility has one closed WMU. WMU-1 is an unlined Class III MSW and woodwaste landfill unit which accepted waste from 1969 until 2003.
11. A Leachate Collection and Removal System (LCRS) underlies the south-central area of WMU-1. The LCRS consists of a perforated pipe embedded in a 14-inch thick, 2-foot wide gravel drain-rock, and a sample collection port which is down slope and gravity fed. The sample collection port is monitored monthly for the presence of leachate. A leachate pump, temporary holding tanks, and carbon filters for removing organic compounds are brought in on

a case-by-case basis if leachate is generated. Treated leachate has historically been transported to the Siskiyou County Airport wastewater treatment ponds for storage and treatment. Following closure of WMU-1 however, no leachate has been observed in the collection system.

SITE DESCRIPTION

12. Topography at the site of the Facility ranges from approximately 3,850 to 3,946 feet above mean sea level (MSL). Natural slopes and cut slopes in the area surrounding the landfill range from gently rolling hills to the southwest to very steep hills along the east and northeast edges of the site. The Facility generally slopes toward Wagon Creek, a tributary of the Upper Sacramento River, although surface water runoff is rarely seen due to the highly permeable soils in the area. No springs have been observed at the Facility, or within one mile of the perimeter of the Facility.
13. Land uses within one mile of the Facility include non-prime agricultural to the north, heavy industrial to the south, light industrial, residential and non-prime agricultural to the east, and non-prime agricultural to the west.
14. There are 193 municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the Facility.
15. The Facility is underlain by Quaternary-age to Holocene-age volcanic deposits consisting of interbedded mudflows, lava, and tuff deposits. Well logs for the Facility indicate that the geologic materials as deep as 200 feet beneath the Facility consist generally of loose angular boulders to cobble-sized clasts, which vary from being well cemented in a fine-grained matrix to being unconsolidated.
16. The measured hydraulic conductivity of the native soils underlying the landfill unit ranges between 0.01 and 1 centimeters per second (cm/s).
17. Based on a site-specific seismic analysis, the controlling maximum probable earthquake (MPE) for the Facility is a moment of magnitude 7.1 event along the historically active Cedar Mountain Fault at a closest rupture distance of 24 miles from the Facility. It is estimated that a MPE event would produce a peak ground acceleration of 0.08g at the Facility. An unnamed Quaternary age fault which crosses the top of Mount Shasta is the closest potentially active fault, and could produce a peak ground acceleration of 0.38g.
18. The Facility receives an average of 37.5 inches of precipitation per year as measured at the Mount Shasta City KMHS Weather Station. The mean pan evaporation is 55 inches per year as measured at the Montague 3NW Station.
19. The 100-year, 24-hour precipitation event for the Facility is estimated to be 7.9 inches, based on Department of Water Resources' bulletin 195 entitled *Rainfall Depth-Duration-Frequency for California*, revised November 1982, updated August 1986.
20. WMU-1 is not within a 100-year flood plain based on the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Community-Panel Number 06093C3025D.

21. Storm water sedimentation basins are located south of WMU-1 as shown on **Attachment B**. The basins detain storm water for sediment control during the rainy season and are normally dry during the summer months. The sedimentation basins do not discharge due to highly permeable underlying soils onsite and the correspondingly rapid infiltration to the subsurface.

SURFACE WATER AND GROUNDWATER CONDITIONS

22. The operative *Water Quality Control Plan for the Sacramento and San Joaquin River Basins* (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
23. Surface water drainage from the Facility is to Wagon Creek, a tributary of the Upper Sacramento River in the Mount Shasta Hydrologic Region.
24. The designated beneficial uses of the Upper Sacramento River, as specified in the Basin Plan, are agricultural supply; water contact recreation; non-contact water recreation; cold freshwater habitat; wildlife habitat; spawning, reproduction, and/or early development.
25. The first encountered groundwater ranges from about 60 feet to 100 feet below the native ground surface. Groundwater elevations range from about 3,835 feet MSL to 3,785 feet MSL and is characterized by an unconfined groundwater zone within the Quaternary age volcanic deposits.
26. Monitoring data indicate background groundwater quality for first encountered groundwater has electrical conductivity (EC) ranging between 70 and 140 micromhos/centimeter, with total dissolved solids (TDS) ranging between 60 and 120 milligrams per liter (mg/L).
27. The direction of groundwater flow is generally toward the west or southwest. The estimated average groundwater gradient typically ranges from 0.02 to 0.04 feet per foot. The estimated average groundwater velocity is 2,800 feet per year.
28. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal water supply, agricultural supply, industrial service supply, and industrial process supply.

GROUNDWATER AND UNSATURATED ZONE MONITORING

29. The existing groundwater monitoring network for WMU-1 consists of background monitoring well OB-2A, and detection monitoring wells OB-1, OB-3A and OB-5. Monitoring well OB-4 is no longer sampled.
30. At the time this Order was adopted, the Discharger's monitoring program for groundwater at the landfill satisfied the requirements contained in Title 27.
31. No vadose zone monitoring has been required at the Facility, as gas monitoring wells have not detected methane or soil gas in over 15 years; however, the perimeter gas detection wells may be used as vadose monitoring points if groundwater monitoring suggests landfill gas migration.
32. 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, section 20415, subdivisions (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, section 20415, subdivision (b)(1)(B)2.-4. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

33. The Central Valley Water Board may specify a non-statistical data analysis method pursuant to Title 27, section 20080, subdivision (a)(1). Water Code section 13360, subdivision (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.
34. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a landfill unit, the SPRRs specify a non-statistical method for the evaluation of monitoring data for non-naturally occurring compounds. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a landfill unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL) [a.k.a, laboratory reporting limit (RL)], indicates that a release of waste from a WMU 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.
35. For a naturally occurring constituent of concern (COC), the Title 27 requires concentration limits for each COC be determined as follows:
 - a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415, subdivision (e)(8); or
 - b. By an alternate statistical method meeting the requirements of Title 27, section 20415, subdivision (e)(8)(E).
36. The Discharger submitted a 1 June 2018 Water Quality Protection Standard (WQPS) report proposing statistical data analysis methods to calculate concentration limits for each monitored constituent in accordance with Title 27. The WQPS report proposed to use intrawell data analysis to calculate tolerance limits for the monitored constituents. The WQPS and approved data evaluation methods are included in MRP R5-2019-0032.

GROUNDWATER DEGRADATION AND CORRECTIVE ACTION

37. Historically, elevated concentrations of EC, TDS, sulfate, calcium, magnesium, sodium, potassium and bicarbonate have been detected in downgradient monitoring wells. These groundwater monitoring results indicated potential groundwater impacts related to the Facility.

38. VOCs and semi-volatile organic compounds (SVOCs) have intermittently been detected at the Facility, with benzoic acid detected in upgradient monitoring well OB-2A intermittently since 2013, and trichloroethene (TCE) detected in downgradient monitoring well OB-5 since 2000. Benzoic acid was detected at a maximum concentration of 54 micrograms per liter ($\mu\text{g/L}$) in 2016. TCE was detected at OB-5 at its highest concentration, 300 $\mu\text{g/L}$, during the first sampling event after its installation in August 2000, but dropped off to 14.6 $\mu\text{g/L}$ during the next sampling event in December 2000. TCE concentrations have ranged from 0.35 to 10.5 $\mu\text{g/L}$ since 2001, and has been less than the maximum contaminant level since 2016. Historically, leachate seeps were also noted during sampling events.
39. The Discharger proposed closing WMU-1 as a corrective action response to the groundwater degradation, and to alleviate leachate seeps. The Discharger constructed a closure cap and initiated closure in three phases. In August 2000, Phase 1 was implemented and consisted of installing a foundation layer sloped at 3 percent to discourage ponding, a low permeability layer, and a temporary plastic liner over previously observed leachate seep areas. Phase 2 was implemented in the summer of 2001 and consisted of removing the temporary plastic liner and installing a 60-mil geosynthetic layer and an 8-ounce nonwoven geotextile layer over WMU-1. Phase 3 was implemented in the summer of 2003 and consisted of capping the final cover with an additional 18-inches of onsite material. Leachate generation has ceased and has not been observed in the LCRS sump since 2003, and leachate seeps have not been observed following the closure of WMU-1.
40. Analysis of historical monitoring data for the Facility generally indicates stable to declining concentrations of general mineral constituents as a result of the corrective action measures. Statistical trend analysis also shows that background water quality in OB-2A has numerous decreasing trends, which indicates that background water quality is continuing to change. Benzoic acid has intermittently been detected in OB-2A, but has not been detected in the last six sampling events. TCE concentrations in OB-5 have declined following the removal of electrical tape from the dedicated submersible pump in 2016.

LINER PERFORMANCE DEMONSTRATION

41. WMU-1, is unlined and predates the requirements set forth under Title 27, section 20080, subdivision (d) established in 1984.

CONSTRUCTION AND ENGINEERED ALTERNATIVE

42. Water Code section 13360, subdivision (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 WDRs or orders for the discharge of waste at solid waste disposal facilities.
43. WMU-1 is closed and expansion of the existing footprint has not been proposed.
44. During closure construction, a LCRS system was installed in the south-central portion of WMU-1. The LCRS consists of a perforated and blank pipe embedded in a 14-inch thick, 2-foot wide gravel drain-rock, and a sample collection port which is down slope and gravity fed. The LCRS sample port is monitored for the presence of leachate on a monthly basis, but leachate has not been detected since the final cover was completed in 2003.

45. Unsaturated zone monitoring has been waived at the Facility. Sampling of the vadose zone is not required at the Facility because landfill gas has not been detected in the perimeter gas detection wells in over 15 years. There are no vadose zone sampling points at the Facility; however, the perimeter gas detection wells may be used as vadose monitoring points if semiannual groundwater monitoring suggests landfill gas migration.
46. The 1 June 2018 ROWD includes a stability analysis for WMU-1 pursuant to Title 27, section 21750, subdivision (f)(5). The maximum slope of WMU-1 is flatter than 3 to 1 horizontal to vertical (3H:1V), and the cut slopes in the borrow areas are flatter than 2H:1V. The slope-stability model "SB-Slope" was used to find the minimum factor-of-safety for earth slices, using the Simplified Bishop Method of analysis. The cut slope had static and pseudostatic factors of safety of 3.5 and 1.7, respectively. The waste fill slope had static and pseudostatic factors of safety of 2.2 and 1.1, respectively. Although the slope was stable under dynamic conditions, the results of slope-stability analyses do not meet the minimum factor-of-safety of 1.5 required by Title 27, section 21750, subdivision (f). Because the pseudostatic factor of safety was less than 1.5, a displacement analysis was performed using the Makdisi-Seed limited slip analysis. The calculated displacement was less than 0.1 foot, compared to a commonly accepted limit for displacement at landfills of one foot. The stability analysis demonstrates that the structural components of WMU-1 will withstand the forces of the MPE without failure of the containment systems or environmental controls.

LANDFILL CLOSURE

47. Title 27, section 21090 provides the minimum prescriptive final cover components for landfills consisting of, in ascending order, the following layers:
 - a. Two-foot soil foundation layer.
 - b. One-foot soil low flow-hydraulic conductivity layer, less than 1×10^{-6} cm/s or equal to the hydraulic conductivity of any bottom liner system.
 - c. Geomembrane layer (this layer is required for composite-lined landfills for equivalency to bottom liner).
 - d. One-foot soil erosion resistant/vegetative layer.
48. 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.
49. The Discharger submitted a 13 July 2001 *Final Closure and Postclosure Maintenance Plan* for closure and post-closure maintenance of WMU-1. In October of 2003, construction of the final cover over WMU-1 was completed.
50. The Discharger proposed an engineered alternative final cover consisting of, in ascending order, the following layers:
 - a. A 24-inch thick foundation layer.
 - b. A low hydraulic conductivity layer consisting of 60-mil thick high-density polyethylene (HDPE) liner.

- c. An 8-ounce non-woven geotextile layer.
 - d. A 12-inch thick layer of onsite material screened to less than 1-inch in diameter.
 - e. A 6-inch thick layer of onsite material screened to less than 6-inches in diameter.
51. The Discharger has demonstrated that the engineered alternative final cover meets the performance goals of Title 27 and that it is equivalent to the prescriptive standard.
52. Side slopes for WMU-1 are sloped at 3H:1V and include 15-foot wide benches every 50 vertical feet as required by Title 27.
53. The Discharger performed a slope stability analysis for the proposed final cover. The Discharger's static and dynamic stability analysis demonstrates that the side slopes of the final cover will be stable in accordance with the requirements of Title 27.
54. Pursuant to Title 27, section 21090, subdivision (e)(1), this Order requires a survey of the final cover following closure activities for later comparison with iso-settlement surveys required to be conducted every five years.

LANDFILL POST-CLOSURE MAINTENANCE

55. The Discharger submitted a 13 July 2001 *Final Closure and Postclosure Maintenance Plan* for closure and post-closure maintenance of WMU-1 and WMU-3. The plan addressed clean closure of WMU-3. The plan includes inspection, maintenance, and monitoring of WMU-1 during the post-closure maintenance period, and includes a post-closure maintenance cost estimate for the entire Facility. Inspection and maintenance include the condition of the final cover, drainage features, LCRS, groundwater monitoring wells, 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.
56. 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, subdivision (e)(2), this Order requires iso-settlement maps to be prepared and submitted every five years.

FINANCIAL ASSURANCES

57. Title 27, sections 21840 and 22211 require a cost estimate for landfill post-closure maintenance. The Discharger's 13 July 2001 *Final Closure and Post Closure Maintenance Plan* includes a cost estimate for landfill post-closure maintenance. The 28 October 2016 *Five-Year Review and Certification of Closure/Postclosure Maintenance Plan* updated the cost estimate for post-closure maintenance. The amount of the cost estimate for post-closure maintenance in 2016 dollars is \$341,605. 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. As of 2018, the balance of the post-closure maintenance fund was \$352,274.

58. Title 27, section 22221 requires a cost estimate for corrective action of all known or reasonably foreseeable releases. The Discharger submitted a February 2017 cost estimate of \$165,168 for corrective action of all known or reasonably foreseeable releases. This Order requires that the Discharger maintain financial assurance with the CalRecycle in at least the amount of the cost estimate adjusted annually for inflation. As of 2018, the balance of the corrective action fund was \$168,141.
59. Title 27, section 22100, subdivision (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 groundwater 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, subdivision (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.

CEQA AND OTHER CONSIDERATIONS

60. This action to revise WDRs for an 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.
61. This Order implements:
- a. The *Water Quality Control Plan, Fifth Edition (revised May 2018) for Sacramento and San Joaquin River Basins*.
 - b. The prescriptive standards and performance goals of California Code of Regulations, title 27, section 20005 et seq., effective 18 July 1997, and subsequent revisions.
 - c. 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.
 - d. The applicable provisions of Title 40 C.F.R. section 258 "Subtitle D" federal regulations as required by State Water Board Resolution 93-62.
62. Based on the threat and complexity of the discharge, the Facility is determined to be classified 2-B as defined below:
- a. Category 2 threat to water quality, defined as, "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."

- b. Category B complexity, defined as, "Any discharger not included in Category A that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal), or any Class 2 or Class 3 waste management units."
63. The *Statement of Policy with Respect to Maintaining High Quality of Waters in California*, SWRCB Order WQ 68-16 (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.)
 64. 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, the Anti-Degradation Policy does not apply, and the Discharger need only demonstrate that it will use "best efforts" to control the discharge of waste.
 65. Anti-Degradation Policy does apply to the discharge of waste to Black Butte Class III Municipal Solid Waste Landfill due to the presence of the unlined WMU at the Facility. 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. Elevated inorganic concentrations and detected VOCs and SVOCs concentrations have decreased since final closure was completed at the Facility, and leachate has not been produced in over 15 years. The potential for release of waste constituents is expected to continue to decrease over time. Compliance with this Order, the attached SPRRs, and MRP R5-2019-0032 represent BPTC of the discharge of waste to waters of the State. Therefore, the Facility complies with the Anti-Degradation Policy.
 66. Any degradation that may result from the Facility's discharges to waters of the State would be consistent with the maximum benefit to the people of the State. Avoiding or preventing such degradation would require unearthing and re-engineering the Facility at significant expense to the County. From a water quality standpoint, implementing the BPTC measures required under this Order is a more effective use of the Discharger's limited resources.
 67. Water Code section 13267, subdivision (b)(1) provides that:

[T]he 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.

68. The technical reports required by this Order and the attached Monitoring and Reporting Program R5-2019-0032 are necessary to assure compliance with these WDRs. The Discharger owns and operates the Facility that discharges the waste subject to this Order. Typical annual costs of the Facility monitoring program range from \$8,000 to \$13,000 and are commensurate with similar programs at other landfills throughout the state. The Central Valley Water Board finds that, given the necessity of obtaining accurate and up to date information to inform management of this Facility's discharges, these costs bear a reasonable relationship to the benefit and need for the reports required by the MRP.

PROCEDURAL REQUIREMENTS

69. 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 Facility for the discharges of waste to land stated herein.
70. The Central Valley Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
71. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to California Water Code sections 13263 and 13267, that Order No. R5-2002-0038 is rescinded (except for purposes of enforcement), and that the County of Siskiyou (Discharger), its agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of any waste at this Facility is prohibited.
2. The cessation of any corrective action measure 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. At the time of issuance of this Order, the Facility has been closed with an engineered final cover as the means of corrective action.
3. The Discharger shall comply with all Standard Prohibitions listed in Section C of the SPRRs.

B. DISCHARGE SPECIFICATIONS

1. The water used for Facility maintenance shall be limited to the minimum amount for dust control, construction, or proper compaction of the cover during any necessary repairs.

2. The Discharger shall comply with all Standard Discharge Specifications listed in Section D of the SPRRs.

C. FACILITY SPECIFICATIONS

1. The Discharger shall comply with all Standard Facility Specifications listed in Section E of the SPRRs.

D. CONSTRUCTION SPECIFICATIONS

1. The Discharger shall comply with all Standard Construction Specifications listed in Section F of the SPRRs.
2. The Discharger shall comply with all Storm Water Provisions listed in Section L of the SPRRs.

E. POST-CLOSURE MAINTENANCE SPECIFICATIONS

1. The Discharger shall comply with all Post-Closure Specifications listed in Section G and all Standard Construction Specifications that are applicable to closure in Section F of the SPRRs.

F. FINANCIAL ASSURANCE SPECIFICATIONS

1. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for post-closure maintenance for the landfill in at least the amount of \$352,274 from Finding 57, adjusted for inflation annually. A report regarding financial assurances for post-closure maintenance shall be submitted to the Central Valley Water Board by **1 June of each year**. This may be the same report that is submitted to CalRecycle for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.
2. The Discharger shall update the final closure and post-closure maintenance plan (FCPCMP) any time there is a change that will increase the amount of post-closure maintenance cost estimate. The updated FCPCMP shall be submitted to the Central Valley Water Board, the LEA, and CalRecycle. The FCPCMP shall meet the requirements of Title 27, section 21769, subdivision (b), and include a lump sum estimate of the cost of carrying out all actions necessary to maintain the closed WMU, to prepare detailed design specifications, to develop the PCMP, and to carry out the remaining years of post-closure maintenance. Reports regarding financial assurance required in F.1 above shall reflect the updated cost estimate.
3. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for initiating and completing corrective action for all known or reasonably foreseeable releases from the landfill in at least the amount of the annual inflation-adjusted cost estimate of \$168,141 from Finding 58. A report regarding financial assurances for corrective action shall be submitted to the Central Valley Water Board by **1 June of each year**. This may be the same report that is submitted to CalRecycle

for this purpose. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger shall submit an acceptable mechanism to CalRecycle and the Central Valley Water Board for at least the amount of the approved cost estimate.

4. The Discharger shall comply with all Standard Financial Assurance Specifications listed in Section H of the SPRRs.

G. MONITORING SPECIFICATIONS

1. The Discharger shall comply with the corrective action monitoring program provisions of Title 27 for groundwater, landfill gas, and leachate in accordance with MRP R5-2019-0032, and the Standard Monitoring Specifications listed in Section I of the SPRRs.
2. The Discharger shall comply with the WQPS as specified in this Order, MRP R5-2019-0032, and the SPRRs.
3. The concentrations of the COCs 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 R5-2019-0032.
4. For each monitoring event, the Discharger shall determine whether the landfill is in compliance with the WQPS using procedures specified in MRP R5-2019-0032 and the Standard Monitoring Specifications in Section I of the SPRRs.
5. As specified in MRP R5-2019-0032, 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.
6. The Discharger shall comply with all Standard Monitoring Specifications and Response to a Release specifications listed in Sections I and J of the SPRRs.

H. PROVISIONS

1. The Discharger shall maintain a copy of this Order at the Facility, including the MRP R5-2019-0032 and the SPRRs, and make it available at all times to Facility operating personnel, who shall be familiar with its contents, and to regulatory agency personnel.
2. The Discharger shall comply with all applicable provisions of Title 27 that are not specifically referred to in this Order.
3. The Discharger shall comply with MRP R5-2019-0032, which is incorporated into and made part of this Order by reference.
4. 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 Title 27.

5. 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.
6. All reports required by this Order shall be submitted pursuant to Water Code section 13267, and shall be prepared by a California-registered Civil Engineer or Geologist.
7. The Discharger shall complete the tasks contained in these WDRs in accordance with the following time schedule:

<u>Task</u>	<u>Completion Date</u>
1. Submit an annual review of Financial Assurances for post-closure maintenance.	1 June (annually)
2. Submit an annual review of Financial Assurances for initiating and completing corrective action.	1 June (annually)

8. The Discharger shall comply with all General Provisions listed in Section K of the SPRRs.
9. 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.shtm.

Notification of the GeoTracker upload shall be emailed to the Central Valley Water Board at: centralvalleyredding@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: Groundwater Unit
Report Title
GeoTracker Upload ID
Discharger name: County of Siskiyou
Facility name: Black Butte Class III Municipal Solid Waste Landfill
County: Siskiyou
CIWQS place ID: 209702

Any person aggrieved by this Central Valley Water Board action may petition the State Water Board for review in accordance with Water Code section 13320 and California Code of Regulations, title 23, section 2050 et seq. 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 30th day 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 the address below), and will be provided upon request.

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

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 5 April 2019.

ORIGINAL SIGNED BY PATRICK PULUPA
PATRICK PULUPA, Executive Officer

PD

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2019-0032
FOR
COUNTY OF SISKIYOU
BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION
SISKIYOU COUNTY

This monitoring and reporting program (MRP) is issued pursuant to California Water Code section 13267 and incorporates requirements for groundwater and unsaturated zone monitoring and reporting; Facility monitoring, maintenance, and reporting; and financial assurances reporting contained in California Code of Regulations, title 27, section 20005 et seq. (Title 27), Waste Discharge Requirements (WDRs) Order R5-2019-0032, and the Standard Provisions and Reporting Requirements (SPRRs) dated April 2016. Compliance with this MRP is ordered by the WDRs and the Discharger shall not implement any changes to this MRP unless a revised MRP is issued by the Central Valley Water Board or the Executive Officer.

A. MONITORING

The Discharger shall comply with the corrective action monitoring program provisions of Title 27 for groundwater in accordance with Standard Monitoring Specifications in Section I of the SPRRs and the Monitoring Specifications in Section G of the WDRs. All monitoring shall be conducted in accordance with the most current approved *Sample Collection and Analysis Plan*, which includes quality assurance/quality control (QA/QC) standards.

All compliance monitoring wells established for the corrective action monitoring program shall constitute the monitoring points for the groundwater Water Quality Protection Standard (WQPS). All corrective action monitoring program groundwater monitoring wells and leachate monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as indicated and listed in Tables I through V.

The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits (MDLs) equal to or lower than the analytical methods specified in this MRP, and are identified in the approved *Sample Collection and Analysis Plan*.

The monitoring program of this MRP includes:

<u>Section</u>	<u>Monitoring Program</u>
A.1	Groundwater Monitoring
A.2	Unsaturated Zone Monitoring
A.3	Leachate Monitoring and Seep Monitoring
A.4	Facility Monitoring

1. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater monitoring system that complies with the applicable provisions of Title 27, Subchapter 3 "Water Monitoring". The monitoring system shall be certified by a California-licensed professional civil engineer or geologist as meeting the

requirements of Title 27. The current groundwater monitoring system meets the applicable requirements of Title 27.

The current groundwater monitoring network shall consist of the following:

<u>Well</u>	<u>Status</u>	<u>Zone</u>	<u>Screen elevation</u>	<u>Units Being Monitored</u>
OB-1	Corrective Action	Shallow	3768 - 3778 feet	WMU-1
OB-2A	Background	Shallow	3807 - 3817 feet	NA
OB-3A	Corrective Action	Shallow	3792 - 3857 feet	WMU-1
OB-5	Corrective Action	Shallow	3790 - 3813 feet	WMU-1

Groundwater samples shall be collected from the background well, corrective action monitoring wells, and any additional wells added as part of the approved groundwater monitoring system. The collected samples shall be analyzed for the parameters and constituents listed in Table I in accordance with the specified methods and frequencies. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved *Sample Collection and Analysis Plan*.

Twice a year, the Discharger shall measure the depth to groundwater and calculate the groundwater elevation in each well, estimate the direction and magnitude of the groundwater gradient, and estimate groundwater velocity in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation monitored. The results shall be reported semiannually, including the times of expected highest and lowest elevations of the water levels in the wells, pursuant to Title 27, section 20415, subdivision (e)(15).

Samples collected for the COC monitoring specified in Table I shall be collected and analyzed in accordance with the methods listed in Table V every five years. Five-year COCs were last monitored in 2016 and shall be monitored again in **2021**. The results shall be reported in the Annual Monitoring Report for the year in which the samples were collected.

2. Unsaturated Zone Monitoring

The Discharger shall operate and maintain an unsaturated zone monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The unsaturated zone monitoring networks consists of seven perimeter gas-monitoring wells, with a total of 17 individual probes. The current unsaturated zone monitoring system meets the applicable requirements of Title 27.

The unsaturated zone monitoring network shall consist of:

<u>Monitoring Point</u>	<u>Zone</u>	<u>Units Being Monitored</u>
GM-1S	Shallow	Facility Perimeter
GM-1D	Deep	Facility Perimeter
GM-2S	Shallow	Facility Perimeter
GM-2I	Intermediate	Facility Perimeter
GM-2D	Deep	Facility Perimeter
GM-3S	Shallow	Facility Perimeter
GM-3I	Intermediate	Facility Perimeter
GM-3D	Deep	Facility Perimeter
GM-4S	Shallow	Facility Perimeter

<u>Monitoring Point</u>	<u>Zone</u>	<u>Units Being Monitored</u>
GM-4I	Intermediate	Facility Perimeter
GM-4D	Deep	Facility Perimeter
GM-5S	Shallow	Facility Perimeter
GM-6S	Shallow	Facility Perimeter
GM-6I	Intermediate	Facility Perimeter
GM-6D	Deep	Facility Perimeter
GM-7S	Shallow	Facility Perimeter
GM-7D	Deep	Facility Perimeter

Unsaturated zone samples shall be collected from the monitoring network listed above and shall be analyzed for the parameters and constituents listed in Table II in accordance with the specified methods and frequencies.

The Discharger shall collect, preserve, and transport samples in accordance with the QA/QC standards contained in the approved *Sample Collection and Analysis Plan*.

Monitoring results for the unsaturated zone shall be included in monitoring reports and shall include an evaluation of potential impacts of the Facility on the unsaturated zone and compliance with the WQPS.

3. Leachate Monitoring and Seep Monitoring

a. Leachate Monitoring

The Discharger shall operate and maintain the leachate collection and removal system (“LCRS”) sump, and conduct monitoring of leachate detected in the sump.

The current LCRS leachate sump monitoring point is:

<u>Mon Pt.</u>	<u>Unit Where Sump is Located</u>
Leachate sampling port	WMU-1

The LCRS sump shall be inspected semiannually for the presence of leachate, and flow shall be recorded in accordance with Table III. If leachate is detected in the previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table III. Leachate in the LCRS sump shall then be sampled for all parameters and constituents in accordance with the frequencies listed in Table III whenever liquid is present. The LCRS sump sample, if available, shall be analyzed for the 5-year COCs specified in Table V every five years, upon detection of leachate and every five years thereafter.

b. Seep Monitoring

Leachate that seeps to the surface from the landfill unit shall be sampled and analyzed for the Field and Monitoring Parameters listed in Table III upon detection. The quantity of leachate shall be estimated and reported as Leachate Flow Rate (in gallons/day). Reporting for leachate seeps shall be conducted as required in Section B.3 of this MRP, below.

4. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the Facility. The inspection shall assess repair and maintenance needed for drainage control systems, cover systems, and groundwater monitoring wells; and shall assess preparedness for winter conditions (including but not limited to erosion and sedimentation control). The Discharger shall take photos of any problem areas before and after repairs. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. Annual Facility inspection reporting shall be submitted as required in Section B.4 of this MRP.

b. Major Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities and all landfill side slopes for damage **within 7 days** following major storm events capable of causing damage or significant erosion. The Discharger shall take photos of any problem areas before and after repairs. Necessary repairs shall be completed **within 30 days** of the inspection. Notification and reporting requirements for major storm events shall be conducted as required in Section B.5 of this MRP.

c. Five-Year Iso-Settlement Survey for Closed Units

For WMU-1, the Discharger shall conduct a five-year iso-settlement survey and produce an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover's low-hydraulic-conductivity layer. For each portion of the landfill unit, this map shall show the total lowering of the surface elevation of the final cover, relative to the baseline topographic map [Title 27, §21090, subdivisions (e)(1 & 2)]. Reporting shall be in accordance with Section B.6 of this MRP. The next iso-settlement survey shall be conducted in 2021.

d. Standard Observations

The Discharger shall conduct Standard Observations at the landfill in accordance with this section of the MRP. Standard observations shall be conducted in accordance with the following schedule:

<u>Landfill Unit Type</u>	<u>Frequency</u>	<u>Season</u>
Closed	Monthly	Wet: 1 October to 30 April
Closed	Quarterly	Dry: 1 May to 30 September

The Standard Observations shall include:

- 1) For the landfill unit:
 - a) Evidence of ponded water at any point on the landfill outside of any contact storm water/leachate diversions structures (show affected area on map); and
 - b) Evidence of erosion and/or of day-lighted refuse.

2) Along the perimeter of the landfill unit:

- a) Evidence of leachate seeps, estimated size of affected area, and flow rate (show affected area on map); and
- b) Evidence of erosion and/or of day-lighted refuse.

Results of Standard Observations shall be submitted in the semiannual monitoring reports required in Section B.1 of this MRP.

B. REPORTING

The Discharger shall submit the following reports in accordance with the required schedule:

Reporting Schedule

<u>Section</u>	<u>Report</u>	<u>End of Reporting Period</u>	<u>Due Date</u>
B.1	Semiannual Monitoring Report	30 June, 31 December	1 August, 1 February
B.2	Annual Monitoring Report	31 December	1 February
B.3	Seep Reporting	Continuous	Immediately & 7 Days
B.4	Annual Facility Inspection Report	31 October	15 November
B.5	Major Storm Event Reporting	Continuous	7 days from damage discovery
B.6	Survey and Iso-Settlement Map for Closed Landfills	Every Five Years	At Closure Completion and Every Five Years
B.7	Financial Assurances Report	31 December	1 June

The Discharger shall enter all monitoring data and reports into the online GeoTracker database as required by Division 3 of Title 27 and Chapter 30, Division 3 of Title 23. Notification of the GeoTracker upload shall be emailed to the Central Valley Water Board at: centralvalleyredding@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:	Groundwater Unit
Report Title	
GeoTracker Upload ID	
Discharger name:	County of Siskiyou
Facility name:	Black Butte Class III Municipal Solid Waste Landfill
County:	Siskiyou
CIWQS place ID:	209702

Reporting Requirements

The Discharger shall submit monitoring reports **semiannually** with the data and information as required in this MRP and as required in WDRs Order R5-2019-0032 and the SPRRs (particularly Section I: "Standard Monitoring Specifications" and Section J: "Response to a Release"). In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with WDRs or the lack thereof. Data shall also be submitted in a digital format, such as a computer disk.

Field and laboratory tests shall be reported in each monitoring report. Semiannual and annual monitoring reports shall be submitted to the Central Valley Water Board in accordance with the above schedule for the calendar period in which samples were taken or observations made.

The results of **all monitoring** conducted at the Facility shall be reported to the Central Valley Water Board in accordance with the reporting schedule above for the calendar period in which samples were taken or observations made.

The Discharger shall retain records of all monitoring information, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained throughout the life of the Facility including the post-closure period. Such records shall be legible and shall show the following for each sample:

10. Sample identification and the monitoring point or background monitoring point from which it was taken, along with the identity of the individual who obtained the sample;
11. Date, time, and manner of sampling;
12. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
13. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
14. Calculation of results; and
15. Results of analyses, and the MDL and Practical Quantitation Limit (PQL) for each analysis. All peaks shall be reported.

Required Reports

1. **Semiannual Monitoring Report:** Monitoring reports shall be submitted semiannually and are due on **1 August** and **1 February**. Each semiannual monitoring report shall contain at least the following:
 - a) For each groundwater monitoring point addressed by the report, a description of:
 - 1) The time of water level measurement;
 - 2) The type of pump - or other device - used for purging and the elevation of the pump intake relative to the elevation of the screened interval;

- 3) The method of purging used to stabilize water in the well bore before the sample is taken including the pumping rate; the equipment and methods used to monitor field pH, temperature, and conductivity during purging; results of pH, temperature, conductivity, and turbidity testing; and the method of disposing of the purge water;
 - 4) The type of pump - or other device - used for sampling, if different than the pump or device used for purging; and
 - 5) A statement that the sampling procedure was conducted in accordance with the approved *Sample Collection and Analysis Plan*.
- b) A map or aerial photograph showing the locations of observation stations, monitoring points, and background monitoring points.
 - c) The estimated semiannual groundwater velocity, gradient magnitude and direction in the uppermost aquifer, in any zones of perched water, and in any additional zone of saturation monitored based upon water level elevations calculated prior to the collection of the water quality data submitted in the report [Title 27, § 20415, subdivision (e)(15)].
 - d) Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, unsaturated zone, and leachate. Concentrations below the laboratory reporting limit shall not be reported as "ND" unless the reporting limit (RL) is also given in the table. Otherwise they shall be reported "<" the RL (e.g., <0.10). Units shall be as required in Tables I through III unless specific justification is given to report in other units. Refer to the SPRRs Section I "Standard Monitoring Specifications" for requirements regarding MDLs and PQLs.
 - e) Laboratory statements of results of all analyses evaluating compliance with requirements.
 - f) An evaluation of the concentration of each monitoring parameter (or 5-year COC when five-year COC sampling is conducted) as compared to the current concentration limits, and the results of any required verification testing for constituents exceeding a concentration limit. Report any actions taken under Section J: Response to a Release for verified exceedances of a concentration limit for wells/constituents not already in corrective action monitoring.
 - g) An evaluation of the effectiveness of the leachate monitoring and control Facility, and of the run-off/run-on control facilities.
 - h) A summary of all Standard Observations for the reporting period required in Section A.4.d of this MRP.
 - i) A summary of inspection, leak search, and repair of final covers on the closed landfill unit in accordance with an approved final post-closure maintenance plan as required by Standard Closure and Post-Closure Maintenance Specifications G.26 through G.29 of the SPRRs.
2. **Annual Monitoring Report:** The Discharger shall submit an Annual Monitoring Report to the Central Valley Water Board by **1 February** covering the reporting period of the previous monitoring year. If desired, the Annual Monitoring Report may be combined with the second semiannual report, but if so, shall clearly state that it is both a semi-annual and annual monitoring report in its title. Each Annual Monitoring Report shall contain the following information:

- a) All monitoring parameters shall be graphed to show historical trends at each monitoring point and background monitoring point, for all samples taken within at least the previous five calendar years. If a 5-year COC event was performed, then these parameters shall also be graphically presented. Each such graph shall plot the concentration of one or more constituents for the period of record for a given monitoring point or background monitoring point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
 - b) An evaluation of the monitoring parameters with regards to the cation/anion balance, and a graphical presentation using a Stiff diagram, a Piper graph, or a Schoeller plot.
 - c) All historical monitoring data for which there are detectable results, including data for the previous year, shall be submitted in tabular form in a digital file format such as a computer disk. The Central Valley Water Board regards the submittal of data in hard copy and in digital format as "...the form necessary for..." statistical analysis [Title 27, § 20420, subdivision (h)], that facilitates periodic review by the Central Valley Water Board.
 - d) Hydrographs of each well showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared semiannually and submitted annually.
 - e) A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the WDRs.
 - f) A written summary of the monitoring results, indicating any changes made or observed since the previous Annual Monitoring Report.
 - g) Updated concentration limits for each monitoring parameter at each monitoring well based on the new data set.
3. **Seep Reporting:** The Discharger shall report by telephone any seepage from the disposal area **immediately** after it is discovered. A written report shall be filed with the Central Valley Water Board **within seven days**, containing at least the following information:
- a) A map showing the location(s) of seepage;
 - b) An estimate of the flow rate;
 - c) A description of the nature of the discharge (e.g., all pertinent observations and analyses);
 - d) Verification that samples have been submitted for analyses of the Field Parameters and Monitoring Parameters listed in Table III of this MRP, and an estimated date that the results will be submitted to the Central Valley Water Board; and
 - e) Corrective measures underway or proposed, and corresponding time schedule.
4. **Annual Facility Inspection Reporting:** By **15 November** of each year, the Discharger shall submit a report describing the results of the inspection and the repair measures implemented, preparations for winter, and include photographs of any problem areas and the repairs. Refer to Section A.4.a of this MRP, above.

5. **Major Storm Event Reporting:** Following major storm events capable of causing damage or significant erosion, the Discharger **immediately** shall notify Central Valley Water Board staff of any damage or significant erosion upon discovery and report subsequent repairs within **14 days** of completion of the repairs, including photographs of the problem and the repairs. Refer to Section A.4.b of this MRP, above.
6. **Survey and Iso-Settlement Map for Closed Landfills:** The Discharger shall conduct a survey and submit an iso-settlement map for the closed area of the landfill every five years pursuant to Title 27, section 21090, subdivision (e). Refer to Section A.4.c of this MRP, above. The next report is due by 2021.
7. **Financial Assurances Report:** By **1 June** of each year, the Discharger shall submit a copy of the annual financial assurances report due to CalRecycle that updates the financial assurances for post-closure maintenance and corrective action. Refer to Financial Assurances Specifications F.1 through F.3 of the WDRs.

C. WQPS AND COMPLIANCE PERIOD

1. WQPS Report

For WMU-1, the WQPS shall consist of all COCs, the concentration limit for each COC, the verification retesting procedure to confirm measurably significant evidence of a release, the point of compliance (POC), and all water quality monitoring points for each monitored medium.

The WQPS for naturally occurring waste constituents consists of the COCs, the concentration limits, and the POC and all monitoring points. Any proposed changes to the WQPS other than annual update of the concentration limits shall be submitted in a report for review and approval.

The report shall:

- a. Identify **all distinct bodies of groundwater** that could be affected in the event of a release from WMU-1. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the Facility.
- b. Include a map showing the monitoring points and background monitoring points for the groundwater monitoring program and the unsaturated zone monitoring program. The map shall include the POC in accordance with Title 27, section 20405.
- c. Evaluate the perennial direction(s) and magnitude(s) of the groundwater gradient within the uppermost groundwater zone(s).
- d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and COCs that are detected in 10% or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415, subdivisions (e)(8)(A-D) or section 20415, subdivision (e)(8)(E).
- e. Include a retesting procedure to confirm or deny measurably significant evidence of a release pursuant to Title 27, section 20415, subdivision (e)(8)(E) and section 20420, subdivisions (j)(1-3).

The WQPS shall be certified by a California-registered civil engineer or geologist as meeting the requirements of Title 27. If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger may request modification of the WQPS.

The Discharger proposed the methods for calculating concentration limits in the 1 June 2018 *WQPS Report*. The limits are calculated using intrawell tolerance limits for the monitoring constituents. Intrawell analysis is more appropriate for the Facility because there was previous evidence of a release in downgradient monitoring wells OB-1 and OB-5, and groundwater geochemistry has been documented as highly variable in the background monitoring well.

The concentration limits shall be updated annually for each monitoring well using new and historical monitoring data, and presented in the Annual Monitoring Report.

2. Monitoring Parameters

Monitoring parameters are a select group of constituents that are monitored during each monitoring event that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a WMU. The monitoring parameters for WMU-1 are those listed in Tables I through V for the specified monitored medium.

3. Constituents of Concern (COCs)

The COCs include a larger group of waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in WMU-1, and are required to be monitored every five years [Title 27, sections 20395 and 20420, subdivision (g)]. The COCs for WMU-1 are those listed in Tables I through V for the specified monitored medium. The Discharger shall monitor all COCs every five years, or more frequently as required in accordance with a Corrective Action Program. The last 5-year COC report was submitted to the Central Valley Water Board in the 2016 *Annual Monitoring Report*, and 5-year COCs are due to be monitored again in **2021**.

4. Concentration Limits

For a naturally occurring COC, the concentration limit for each COC shall be determined as follows:

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

The methods for calculating concentration limits were included in the 1 June 2018 *WQPS Report*. The approved method uses Intrawell data analysis to calculate tolerance limits for the monitored constituents.

The most recent concentration limits for select parameters as reported in the 1 June 2018 *WQPS Report* were as follows:

Background Well	TDS ² (mg/L)	Bicarbonate (mg/L) ³	Chloride (mg/L)	Nitrate as N (mg/L)	Sulfate (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	Sodium (mg/L)
OB-1	257	143	10.9	0.7	45.7	32	9	14	18
OB-2A	130	77	2.6	3.0	3.1	14	4	3	8
OB-3A	139	57	4.2	3.0	5.0	10	3	6	10
OB-5	320	270	1.6	6.2	3.9	64	11	9	14

¹ Total Dissolved Solids

² Milligrams per liter

5. Retesting Procedures for Confirming Evidence of a Release

If monitoring results indicate measurably significant evidence of a release, as described in Standard Monitoring Specification I.45 of the SPRRs, then:

- a. For analytes that are detected in less than 10% of the background samples (such as non-naturally occurring constituents), the Discharger shall use the non-statistical retesting procedure required in Standard Monitoring Specification I.46 of the SPRRs.
- b. For analytes that are detected in 10% or greater of the background samples (naturally occurring constituents), the Discharger shall use one of the statistical retesting procedure as required in Standard Monitoring Specification I.47 of the SPRRs.

6. Point of Compliance (POC)

The POC for the WQPS at each WMU is a vertical surface located at the hydraulically downgradient limit of the unit that extends through the uppermost aquifer underlying the WMU. The following are monitoring locations at the WMU-1 POC:

<u>Cell or Module</u>	<u>POC Monitoring Wells</u>
WMU-1	OB-1, OB-3A, OB-5

7. Compliance Period

The compliance period for WMU-1 shall be the number of years equal to the active life of the unit plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the WMU. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program [Title 27, section 20410].

8. Monitoring Points

A monitoring point is a well, device, or location specified in the WDRs, which monitoring is conducted and at which the WQPS applies. The monitoring points for each monitored medium are listed in Section A of this MRP.

D. TRANSMITTAL LETTER FOR ALL REPORTS

A transmittal letter explaining the essential points shall accompany each report. At a minimum, the transmittal letter shall identify any violations found since the last report was submitted, and if the

violations were corrected. If no violations have occurred since the last submittal, this shall be stated in the transmittal letter. The transmittal letter shall also state that a discussion of any violations found since the last report was submitted, and a description of the actions taken or planned for correcting those violations, including any references to previously submitted time schedules, is contained in the accompanying report. The transmittal letter shall contain a statement by the Discharger, or the Discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and complete.

I, PATRICK PULUPA, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of the Monitoring and Reporting Program issued by the California Regional Water Quality Control Board, Central Valley Region, on 5 April 2019.

ORIGINAL SIGNED BY PATRICK PULUPA
PATRICK PULUPA, Executive Officer

PD

TABLE I
GROUNDWATER CORRECTIVE ACTION MONITORING PROGRAM

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Frequency</u>	<u>Sampling Frequency</u>	<u>Reporting</u>
Field Parameters					
Groundwater Elevation	GWELEV	Ft. & 100ths, M.S.L.		Semiannual	Semiannual
Temperature	TEMP	OF		Semiannual	Semiannual
Electrical Conductivity	SC	umhos/cm		Semiannual	Semiannual
pH	PH	pH units		Semiannual	Semiannual
Turbidity	TURB	Turbidity units		Semiannual	Semiannual
Monitoring Parameters					
Total Dissolved Solids (TDS)	TDS	mg/L ¹		Semiannual	Semiannual
Chloride	CL	mg/L		Semiannual	Semiannual
Carbonate	CACO3	mg/L		Semiannual	Semiannual
Bicarbonate	BICACO3	mg/L		Semiannual	Semiannual
Nitrate - Nitrogen	NO3N	mg/L		Semiannual	Semiannual
Sulfate	SO4	mg/L		Semiannual	Semiannual
Calcium	CA	mg/L		Semiannual	Semiannual
Magnesium	MG	mg/L		Semiannual	Semiannual
Potassium	K	mg/L		Semiannual	Semiannual
Sodium	NA	mg/L		Semiannual	Semiannual
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table IV)		ug/L ²		Semiannual	Semiannual
5-Year Constituents of Concern (see Table V)					
Inorganics (dissolved)		ug/L		5 years	2021
Volatile Organic Compounds (USEPA Method 8260B, extended list)		ug/L		5 years	and every 5 years thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L		5 years	" "

1. Milligrams per liter
 2. Micrograms per liter

TABLE II
UNSATURATED ZONE CORRECTIVE ACTION MONITORING PROGRAM

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Landfill Gas Probes				
Atmospheric Temperature	--	°F	Annually	Annually
Atmospheric Pressure	--	inches Hg	Annually	Annually
Methane	--	% by volume	Annually	Annually
Carbon Dioxide	--	% by volume	Annually	Annually
Oxygen	--	% by volume	Annually	Annually
Nitrogen	--	% by volume	Annually	Annually
Probe pressure/vacuum	--	inches Hg	Annually	Annually

TABLE III
LEACHATE MONITORING ¹ AND SEEP MONITORING ²

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
Field Parameters				
Total Flow		Gallons	Semiannually	Semiannually
Flow Rate	FLOW	Gallons/Day	Semiannually	Semiannually
Electrical Conductivity	SC	umhos/cm	Semiannually	Semiannually
pH	PH	pH units	Semiannually	Semiannually
Monitoring Parameters				
Total Dissolved Solids (TDS)	TDS	mg/L	Annually	Annually
Chloride	CL	mg/L	Annually	Annually
Carbonate	CACO3	mg/L	Annually	Annually
Bicarbonate	BICACO3	mg/L	Annually	Annually
Nitrate - Nitrogen	NO3N	mg/L	Annually	Annually
Sulfate	SO4	mg/L	Annually	Annually
Calcium	CA	mg/L	Annually	Annually
Magnesium	MG	mg/L	Annually	Annually
Potassium	K	mg/L	Annually	Annually
Sodium	NA	mg/L	Annually	Annually
Volatile Organic Compounds (USEPA Method 8260B, short list, see Table IV)		ug/L	Annually	Annually
5-Year Constituents of Concern (see Table V)				
Inorganics (dissolved)		ug/L	5 years	Upon detection of
Volatile Organic Compounds (USEPA Method 8260B, extended list)		ug/L	5 years	leachate and every
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		ug/L	5 years	5 years thereafter
				" "

¹. If leachate is detected in a previously dry sump, the Discharger shall verbally notify Central Valley Water Board staff within **seven days** and shall immediately sample and test the leachate for Field and Monitoring Parameters listed in Table III. Leachate in the LCRS sump shall then be sampled for all parameters and constituents in accordance with the frequencies listed in Table III whenever liquid is present.

². Leachate seeps shall be sampled and analyzed for the Field and Monitoring Parameters in this table upon detection. The quantity of leachate shall be estimated and reported in gallons/day. Also, refer to Section B.3.

TABLE IV

MONITORING PARAMETERS FOR CORRECTIVE ACTION MONITORING

Surrogates for Metallic Constituents:

<u>Parameter Description</u>	<u>Geotracker Code</u>
pH	PH
Total Dissolved Solids	TDS
Electrical Conductivity	SC
Chloride	CL
Carbonate	CACO3
BiCarbonate	BICACO3
Sulfate	SO4
Calcium	CA
Magnesium	MG
Potassium	K
Sodium	NA
Nitrate nitrogen	NO3N

Volatile Organic Compounds, short list (USEPA Method 8260B):

Acetone	ACE
Acrylonitrile	ACRAMD
Benzene	BZ
Bromochloromethane	BRCLME
Bromodichloromethane	BDCME
Bromoform (Tribromomethane)	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane (Ethyl chloride)	CLEA
Chloroform (Trichloromethane)	TCLME
Dibromochloromethane (Chlorodibromomethane)	DBCME
1,2-Dibromo-3-chloropropane (DBCP)	DBCP
1,2-Dibromoethane (Ethylene dibromide; EDB)	EDB
o-Dichlorobenzene (1,2-Dichlorobenzene)	DCBZ12
m-Dichlorobenzene (1,3-Dichlorobenzene)	DCBZ13
p-Dichlorobenzene (1,4-Dichlorobenzene)	DCBZ14
trans-1,4-Dichloro-2-butene	DCBE14T
Dichlorodifluoromethane (CFC-12)	FC12
1,1-Dichloroethane (Ethylidene chloride)	DCA11
1,2-Dichloroethane (Ethylene dichloride)	DCA12
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)	DCE11
cis-1,2-Dichloroethylene (cis-1,2-Dichloroethene)	DCE12C
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)	DCE12T
1,2-Dichloropropane (Propylene dichloride)	DCPA12
cis-1,3-Dichloropropene	DCP13C
trans-1,3-Dichloropropene	DCP13T
Di-isopropylether (DIPE)	DIPE
Ethanol	ETHANOL
Ethyltertiary butyl ether	ETBE
Ethylbenzene	EBZ

TABLE IV

MONITORING PARAMETERS FOR CORRECTIVE ACTION MONITORING

Continued

2-Hexanone (Methyl butyl ketone)	HXO2
Hexachlorobutadiene	HCBU
Methyl bromide (Bromomethane)	BRME
Methyl chloride (Chloromethane)	CLME
Methylene bromide (Dibromomethane)	DBMA
Methylene chloride (Dichloromethane)	DCMA
Methyl ethyl ketone (MEK: 2-Butanone)	MEK
Methyl iodide (Iodomethane)	IME
Methyl t-butyl ether	MTBE
4-Methyl-2-pentanone (Methyl isobutylketone)	MIBK
Naphthalene	NAPH
Styrene	STY
Tertiary amyl methyl ether	TAME
Tertiary butyl alcohol	TBA
1,1,1,2-Tetrachloroethane	TC1112
1,1,2,2-Tetrachloroethane	PCA
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1-Trichloroethane (Methylchloroform)	TCA111
1,1,2-Trichloroethane	TCA112
Trichloroethylene (Trichloroethene)	TCE
Trichlorofluoromethane (CFC-11)	FC11
1,2,3-Trichloropropane	TCPR123
Vinyl acetate	VA
Vinyl chloride	VC
Xylenes	XYLENES

TABLE V
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

<u>Inorganics (dissolved):</u>	<u>USEPA Method</u>	<u>Geotracker Code</u>
Aluminum	6010	AL
Antimony	7041	SB
Barium	6010	BA
Beryllium	6010	BE
Cadmium	7131A	CD
Chromium	6010	CR
Cobalt	6010	CO
Copper	6010	CU
Silver	6010	AG
Tin	6010	SN
Vanadium	6010	V
Zinc	6010	ZN
Iron	6010	FE
Manganese	6010	MN
Arsenic	7062	AS
Lead	7421	PB
Mercury	7470A	HG
Nickel	7521	NI
Selenium	7742	SE
Thallium	7841	TL
Cyanide	9010C	CN
Sulfide	9030B	S

Volatile Organic Compounds, extended list (USEPA Method 8260B):

<u>COC Description</u>	<u>Geotracker Code</u>
Acetone	ACE
Acetonitrile (Methyl cyanide)	ACCN
Acrolein	ACRL
Acrylonitrile	ACRAMD
Allyl chloride (3-Chloropropene)	CLPE3
Benzene	BZ
Bromochloromethane (Chlorobromomethane)	BRCLME
Bromodichloromethane (Dibromochloromethane)	DBCME
Bromoform (Tribromomethane)	TBME
Carbon disulfide	CDS
Carbon tetrachloride	CTCL
Chlorobenzene	CLBZ
Chloroethane (Ethyl chloride)	CLEA
Chloroform (Trichloromethane)	TCLME
Chloroprene	CHLOROPRENE
Dibromochloromethane (Chlorodibromomethane)	DBCME
1,2-Dibromo-3-chloropropane (DBCP)	DBCP
1,2-Dibromoethane (Ethylene dibromide; EDB)	EDB
o-Dichlorobenzene (1,2-Dichlorobenzene)	DCBZ12

TABLE V

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

m-Dichlorobenzene (1,3-Dichlorobenzene)	DCBZ13
p-Dichlorobenzene (1,4-Dichlorobenzene)	DCBZ14
trans-1,4-Dichloro-2-butene	DCBE14T
Dichlorodifluoromethane (CFC 12)	FC12
1,1-Dichloroethane (Ethylidene chloride)	DCA11
1,2-Dichloroethane (Ethylene dichloride)	DCA12
1,1-Dichloroethylene (1, I-Dichloroethene; Vinylidene chloride)	DCE11
cis-I ,2-Dichloroethylene (cis-1,2-Dichloroethene)	DCE12C
trans-I ,2-Dichloroethylene (trans-1,2-Dichloroethene)	DCE12T
1,2-Dichloropropane (Propylene dichloride)	DCPA12
1,3-Dichloropropane (Trimethylene dichloride)	DCPA13
2,2-Dichloropropane (Isopropylidene chloride)	DCPA22
1,1-Dichloropropene	DCP11
cis-1,3-Dichloropropene	DCP13C
trans-I ,3-Dichloropropene	DCP13T
Di-isopropylether (DIPE)	DIPE
Ethanol	ETHANOL
Ethyltertiary butyl ether	ETBE
Ethylbenzene	EBZ
Ethyl methacrylate	EMETHACRY
Hexachlorobutadiene	HCBU
2-Hexanone (Methyl butyl ketone)	HXO2
Isobutyl alcohol	ISOBTOH
Methacrylonitrile	METHACRN
Methyl bromide (Bromomethane)	BRME
Methyl chloride (Chloromethane)	CLME
Methyl ethyl ketone (MEK; 2-Butanone)	MEK
Methyl iodide (Iodomethane)	IME
Methyl t-butyl ether	MTBE
Methyl methacrylate	MMTHACRY
4-Methyl-2-pentanone (Methyl isobutyl ketone)	MIBK
Methylene bromide (Dibromomethane)	DBMA
Methylene chloride (Dichloromethane)	DCMA
Naphthalene	NAPH
Propionitrile (Ethyl cyanide)	PACN
Styrene	STY
Tertiary amyl methyl ether	TAME
Tertiary butyl alcohol	TBA
1,1,1,2-Tetrachloroethane	TC1112
1,1,2,2-Tetrachloroethane	PCA
Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)	PCE
Toluene	BZME
1,2,4-Trichlorobenzene	TCB124
1,1,1-Trichloroethane (Methylchloroform)	TCA111
1,1,2-Trichloroethane	TCA112
Trichloroethylene (Trichloroethene; TCE)	TCE

TABLE V

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

Trichlorofluoromethane (CFC-11)	FC11
1,2,3-Trichloropropane (TCP)	TCPR123
Vinyl acetate	VA
Vinyl chloride (Chloroethene)	VC
Xylene (total)	XYLENES

Semi-Volatile Organic Compounds (USEPA Method 8270C or D - base, neutral, & acid extractables):

Acenaphthene	ACNP
Acenaphthylene	ACNPY
Acetophenone	ACPHN
2-Acetylaminofluorene (2-AAF)	ACAMFL2
Aldrin	ALDRIN
4-Aminobiphenyl	AMINOBP4
Anthracene	ANTH
Benzo[a]anthracene (Benzanthracene)	BZAA
Benzo[b]fluoranthene	BZBF
Benzo[k]fluoranthene	BZKF
Benzo[g,h,i]perylene	BZGHIP
Benzo[a]pyrene	BZAP
Benzyl alcohol	BZLAL
Bis(2-ethylhexyl) phthalate	BIS2EHP
alpha-BHC	BHCALPHA
beta-BHC	BHCBETA
delta-BHC	BHCDELTA
gamma-BHC (Lindane)	BHCGAMMA
Bis(2-chloroethoxy)methane	BECEM
Bis(2-chloroethyl) ether (Dichloroethyl ether)	BIS2CEE
Bis(2-chloro-1-methylethyl) ether (Bis(2-chloroisopropyl) ether; DCIP)	BIS2CIE
4-Bromophenyl phenyl ether	BPPE4
Butyl benzyl phthalate (Benzyl butyl phthalate)	BBP
Chlordane	CHLORDANE
p-Chloroaniline	CLANIL4
Chlorobenzilate	CLBZLATE
p-Chloro-m-cresol (4-Chloro-3-methylphenol)	C4M3PH
2-Chloronaphthalene	CNPH2
2-Chlorophenol	CLPH2
4-Chlorophenyl phenyl ether	CPPE4
Chrysene	CHRYSENE
o-Cresol (2-methylphenol)	MEPH2
m-Cresol (3-methylphenol)	MEPH3
p-Cresol (4-methylphenol)	MEPH4
4,4'-DDD	DDD44
4,4'-DDE	DDE44
4,4'-DDT	DDT44

TABLE V
5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

Diallate	DIALLATE
Dibenz[a,h]anthracene	DBAHA
Dibenzofuran	DBF
Di-n-butyl phthalate	DNBP
3,3'-Dichlorobenzidine	DBZD33
2,4-Dichlorophenol	DCP24
2,6-Dichlorophenol	DCP26
Dieldrin	DIELDRIN
Diethyl phthalate	DEPH
p-(Dimethylamino)azobenzene	PDMAABZ
7,12-Dimethylbenz[a]anthracene	DMBZA712
3,3'-Dimethylbenzidine	DMBZD33
2,4-Dimethylphenol (m-Xylenol)	DMP24
Dimethyl phthalate	DMPH
m-Dinitrobenzene	DNB13
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	DN46M
2,4-Dinitrophenol	DNP24
2,4-Dinitrotoluene	DNT24
2,6-Dinitrotoluene	DNT26
Di-n-octyl phthalate	DNOP
Diphenylamine	DPA
Endosulfan I	ENDOSULFANA
Endosulfan II	ENDOSULFANB
Endosulfan sulfate	ENDOSULFANS
Endrin	ENDRIN
Endrin aldehyde	ENDRINALD
Ethyl methanesulfonate	EMSULFN
Famphur	FAMPHUR
Fluoranthene	FLA
Fluorene	FL
Heptachlor	HEPTACHLOR
Heptachlor epoxide	HEPT-EPOX
Hexachlorobenzene	HCLBZ
Hexachlorocyclopentadiene	HCCP
Hexachloroethane	HCLEA
Hexachloropropene	HCPR
Indeno(1,2,3-c,d)pyrene	INP123
Isodrin	ISODRIN
Isophorone	ISOP
Isosafrole	ISOSAFR
Kepone	KEP
Methapyrilene	MTPYRLN
Methoxychlor	MTXYCL
3-Methylcholanthrene	MECHLAN3
Methyl methanesulfonate	MMSULFN
2-Methylnaphthalene	MTNPH2
1,4-Naphthoquinone	NAPHQ14

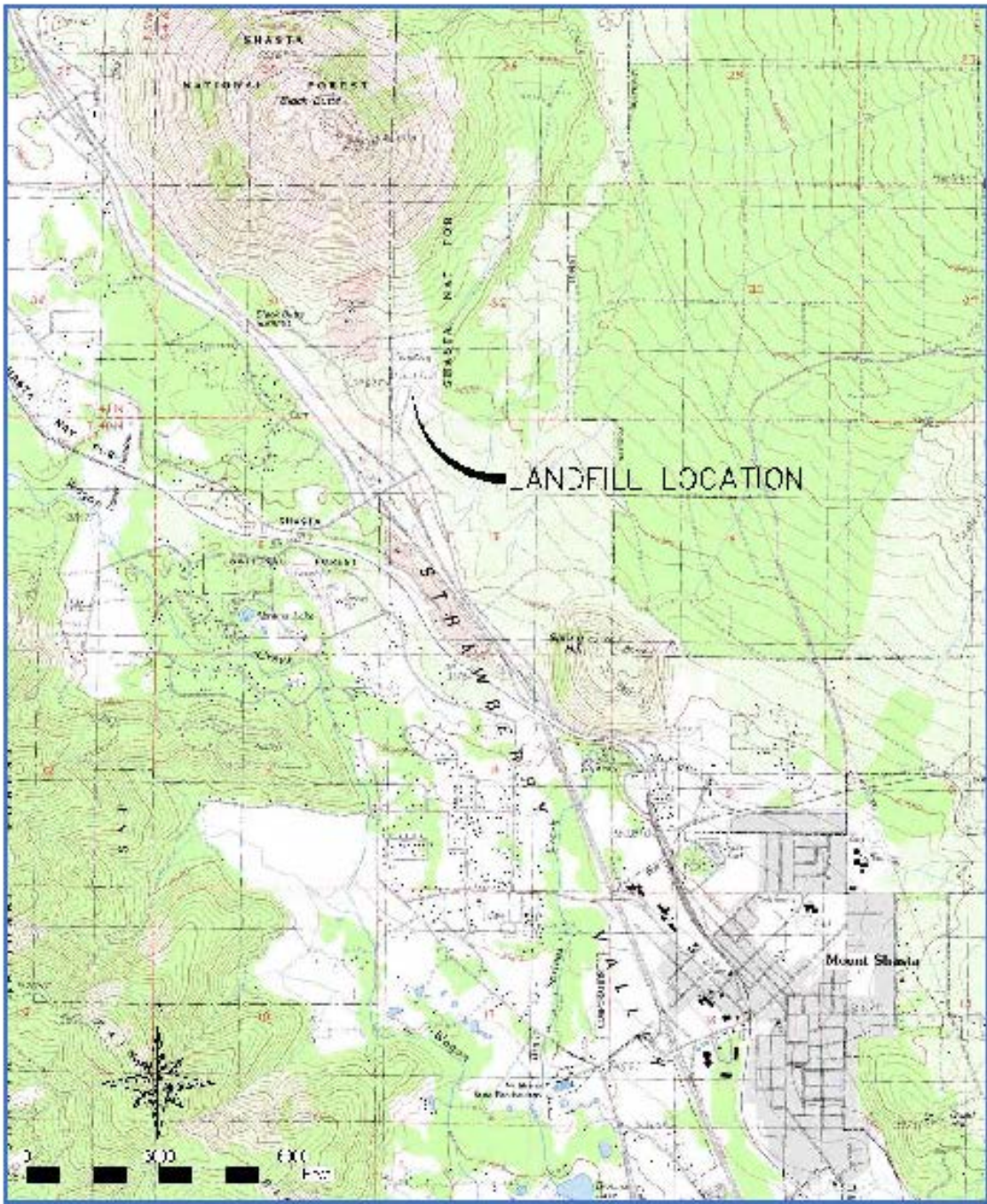
TABLE V

5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS

Continued

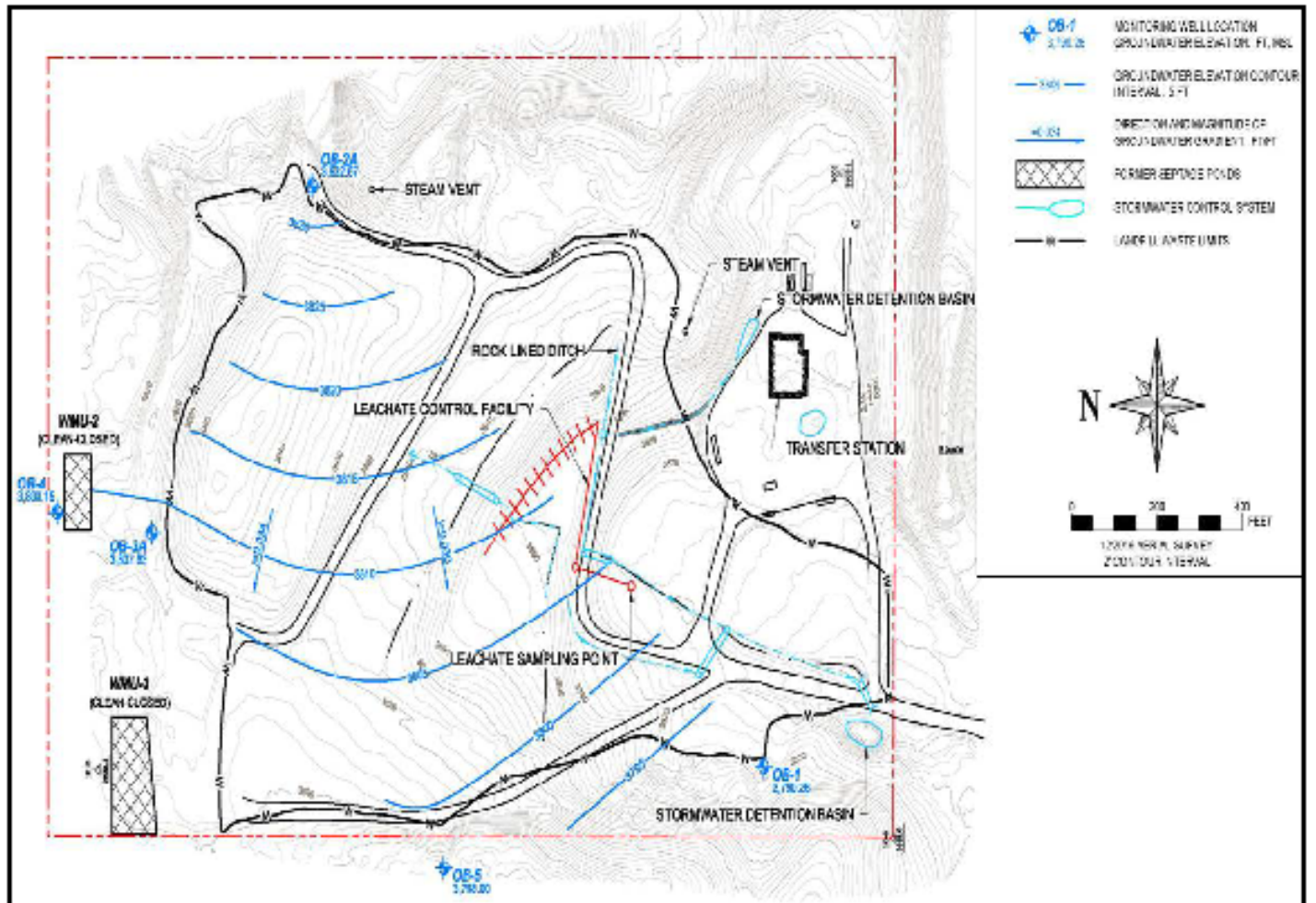
1-Naphthylamine	AMINONAPH1
2-Naphthylamine	AMINONAPH2
o-Nitroaniline (2-Nitroaniline)	NO2ANIL2
m-Nitroaniline (3-Nitroaniline)	NO2ANIL3
p-Nitroaniline (4-Nitroaniline)	NO2ANIL4
Nitrobenzene	NO2BZ
o-Nitrophenol (2-Nitrophenol)	NTPH2
p-Nitrophenol (4-Nitrophenol)	NTPH4
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)	NNSBU
N-Nitrosodiethylamine (Diethylnitrosamine)	NNSE
N-Nitrosodimethylamine (Dimethylnitrosamine)	NNSM
N-Nitrosodiphenylamine (Diphenylnitrosamine)	NNSPH
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine)	NNSPR
N-Nitrosomethylethylamine (Methylethylnitrosamine)	NNSME
N-Nitrosopiperidine	NNSPPRD
N-Nitrosopyrrolidine	NNSPYRL
5-Nitro-o-toluidine	TLDNONT5
Pentachlorobenzene	PECLBZ
Pentachloronitrobenzene (PCNB)	PECLNO2BZ
Pentachlorophenol	PCP
Phenacetin	PHNACTN
Phenanthrene	PHAN
Phenol	PHENOL
p-Phenylenediamine	ANLNAM4
Polychlorinated biphenyls (PCBs; Aroclors)	PCBS
Pronamide	PRONAMD
Pyrene	PYR
Safrole	SAFROLE
1,2,4,5-Tetrachlorobenzene	C4BZ1245
2,3,4,6-Tetrachlorophenol	TCP2346
o-Toluidine	TLDNO
Toxaphene	TOXAP
2,4,5-Trichlorophenol	TCP245
0,0,0-Triethyl phosphorothioate	TEPTH
sym-Trinitrobenzene	TNB135

ATTACHMENT A



BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL

ATTACHMENT B



BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL

INFORMATION SHEET

ORDER R5-2019-0032
COUNTY OF SISKIYOU
BLACK BUTTE CLASS III MUNICIPAL SOLID WASTE LANDFILL
SISKIYOU COUNTY

The Black Butte Class III Municipal Solid Waste Landfill (Facility) is a closed Class III solid waste landfill located approximately two miles east of the City of Mount Shasta in Siskiyou County. The County of Siskiyou (Discharger) owns and operates the Facility. The Facility is on a 61-acre property, with approximately 29 acres dedicated to a single, closed unlined landfill unit (WMU-1) and a transfer station. Historically, the Facility had three waste management units (WMUs), two of which have been clean-closed.

Operated between 1969 and 2002, WMU-1 is unlined containing municipal solid waste (MSW) and woodwaste. No hazardous wastes, radioactive wastes, or volatile and/or flammable wastes were accepted. The Facility ceased accepting MSW in July 2002, when construction of the transfer station was completed. During its operating life, WMU-1 received approximately 20 tons of waste per day and currently contains approximately 160,000 tons of waste. WMU-1 has a passive gas venting system and gas monitoring wells are located along its perimeter; methane has not been detected in perimeter monitoring wells for 15 years. The Facility has a leachate collection and removal system (LCRS), which consists of a perforated pipe placed within a 14-inch thick, two-foot wide gravel drain-rock which leads to a downslope gravity-fed sample collection port.

In 2000, groundwater monitoring data indicated that a release had occurred after elevated concentrations of inorganic monitoring parameters were detected in downgradient wells. In response, the Discharger proposed corrective actions that consisted of capping and closing the landfill to prevent infiltration of precipitation through the waste. Landfill closure began in the summer of 2002, with the grading and compaction of the foundation layer of WMU-1. Closure activities continued through 2003, with the placement of a 60-millimeter high density polyethylene (HDPE) geomembrane, overlain by an 18-inch erosion resistant layer consisting of native soils and cobbles.

Land uses within one mile of the Facility include non-prime agricultural to the north, heavy industrial to the south, light industrial, residential and non-prime agricultural to the east, and non-prime agricultural to the west. There are 193 municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the Facility. Topographic surface drainage is toward Wagon Creek, a tributary of the Sacramento River. Well logs for the Facility indicate that the geologic materials as deep as 200 feet beneath the Facility consist generally of loose angular boulders to cobble-sized clasts, which vary from being well cemented in a fine-grained matrix to being unconsolidated. The first encountered groundwater ranges 30-70 feet below the native ground surface. The groundwater is unconfined, and the depth to groundwater fluctuates seasonally by as much as five feet. The direction of groundwater flow is toward the southwest, with an average gradient of 0.027 feet per foot. The Facility receives 37 inches of precipitation per year on average, with much of it received as snowfall. Due to the high permeability of onsite soils however, there is no surface water discharge from the Facility.

Four monitoring wells are incorporated into monitoring and reporting as specified in the Monitoring and Reporting Program R5-2019-0032 (MRP). Total depths of the wells range from 92 to 155 feet below ground surface. Analysis of groundwater conditions indicates that general

chemistry parameters and metal concentrations are stable or decreasing after corrective actions associated with Facility closure were implemented. Benzoic acid has intermittently been detected in upgradient well OB-2A since 2013, but has not been detected in the last six sampling events. Volatile organic compounds (VOCs) have been detected at downgradient well OB-5, with trichloroethene (TCE) recently detected at low levels above the method detection limit, but beneath the Maximum Contaminant Level (MCL) of 5 micrograms per liter ($\mu\text{g/L}$). During the second quarter 2016 monitoring event, electrical tape around wiring associated with the submersible pump was removed after it was suspected that the tape may be the source of the recently detected TCE. Following removal of the electrical tape, TCE concentrations have slowly decreased.

The two clean-closed units which previously existed onsite, WMU-2 and WMU-3, occupied 0.4 acres and 0.7 acres, respectively. Former WMU-2 housed two unlined septage ponds, which were closed in 1996, and later clean-closed in 2002. Former WMU-3 was an unlined wastewater treatment plant sludge drying surface impoundment, which was clean-closed in 1995.