

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER R5-2018-0071

WASTE DISCHARGE REQUIREMENTS  
FOR  
COUNTY OF KERN  
BUTTONWILLOW SANITARY LANDFILL  
CLASS III LANDFILL  
POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION

KERN COUNTY

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

1. The County of Kern (hereinafter Discharger) owns and manages the Buttonwillow Sanitary Landfill (Facility) located about one mile north of the community of Buttonwillow, in Section 14, T29S, R23E, MDB&M, as shown in Attachment A. The Facility is a municipal solid waste (MSW) landfill regulated under Water Code section 13000 et seq., and California Code of Regulations, title 27, section 20005 et seq. (Title 27); and Code of Federal Regulations, title 40, part 258, in accordance with State Water Resources Control Board (State Water Board) Resolution 93-62.
2. The following attached documents are hereby incorporated as part of this Order:
  - a. Attachment A – Site Location Map
  - b. Attachment B – Site Plan
  - c. Information Sheet
  - d. Monitoring and Reporting Program (MRP) No. R5-2018-0071
  - e. Standard Provisions and Reporting Requirements dated December 2015 (SPRRs).
3. The Facility is on a 70.63-acre property (Site) located at 41751 Sullivan Road and Miller Avenue, Buttonwillow. The existing permitted landfill area is approximately 7.7 acres as shown in Attachment B. The facility is comprised of Assessor's Parcel Numbers (APN) 101-060-12.
4. This Order updates the waste discharge requirements (WDRs) for the facility's waste management unit (WMU) or landfill, as part of an administrative policy of periodic review, to incorporate revisions to regulations and policies adopted thereunder, for continued post-closure maintenance. The last revision of this Order was in 2007.
5. The Facility's landfill operations began in September 1972 and ceased accepting waste in September 1998. Closure construction began in February 2010 and was completed in April 2010. Final closure was accomplished by construction of an evapotranspirative cover as an engineered alternative.

6. On 22 June 2007, the Central Valley Water Board issued Order No. R5-2007-0091 in which the landfill waste management unit (WMU) was classified as a Class III landfill for the discharge of non-hazardous municipal solid waste. This Order continues to classify the landfill units as Class III unit in accordance with Title 27.

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

<u>Unit</u>	<u>Area</u>	<u>Liner/LCRS Components</u>	<u>Unit Classification &amp; Status</u>
WMU	7.7 acres	Unlined	Class III, closed

8. On-site facilities at the Buttonwillow Sanitary Landfill include: a passive landfill gas collection and control system, a groundwater monitoring network, and a chain-link fence.

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 various prohibitions, specifications and provisions, as well as monitoring and reporting requirements. Prohibitions, specifications and provisions are listed in Sections A-G of the WDRs below, as well as in the SPRRs (incorporated herein). Monitoring and reporting requirements are included in the MRP No. R5-2018-0071, and in the SPRRs. Generally, requirements are included in the SPRRs when they are based on regulations or otherwise applicable to all landfills. Any site-specific deviations from the SPRRs are set forth in Sections A-G of the WDRs, which shall supersede any conflicting 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. 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 regulations.

### **WASTE CLASSIFICATION**

12. The Discharger historically discharged municipal solid waste, which is defined in Title 27 section 20164. Waste discharge ceased on 8 September 1998.

## SITE DESCRIPTION

13. The Facility is located north of Buttonwillow in Kern County. The County of Kern owns the entire Site, and Attachment B shows the Site's current boundary and the 7.7-acre WMU.
14. Land within 1,000 feet of the facility is used for irrigated agriculture and non-irrigated open (vacant) land.
15. There are 42 municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the facility. No surface springs or other sources of groundwater supply have been observed.
16. The Facility is located in the west-central portion of the southern San Joaquin Valley. The San Joaquin Valley is bounded on the west by the Coast Ranges, on the east by the Sierra Nevada, and to the south by the Tehachapi and San Emigdio Mountains. Boring and geophysical data from several monitoring wells suggest the alluvial sediments beneath the Facility consist of unconsolidated soils composed of interbedded silty sand, poorly graded sand, silt, and clay. These sediments coarsen to the southwest, grading laterally into predominantly silty sands, clayey sand, and poorly graded sands near well BT1-10. The coarsening of the sediments between depths of 10 and 40 feet below ground surface (bgs) continues southwest through the corrective action program (CAP) wells BT2-02 and BT2-05 where predominantly poorly graded sands with few distinct beds of fine-grained silts and clays are present. These shallow sediments appear to become finer, with poorly graded sands near BT2-01 grading into interbedded silty sands, clayey sands, and poorly graded sands near BT2-04. Deeper soils near CAP well BT2-04 are primarily poorly graded sands and silty sands similar to sediments observed in BT2-02. Interbedded units consisting of fine-grained sediments were encountered at five depth intervals in the deeper boring for BT2-05, ranging in thickness from approximately two to eight feet.
17. The measured hydraulic conductivity of the native soils underlying the landfill unit ranges between  $5 \times 10^{-8}$  and  $1 \times 10^{-3}$  centimeters per second (cm/sec).
18. The closest Holocene fault is the San Andreas Fault, which is located approximately 22 miles southwest of the landfill. The maximum credible acceleration for the site is 0.24g.
19. The Facility receives an average of 5.64 inches of precipitation per year as measured by the Western Regional Climate Center's Buttonwillow Station (041244). The mean pan evaporation is 53.67 inches per year as measured at the *California Irrigation Management System (CIMIS)* Belridge Station (146).
20. The 100-year, 24-hour precipitation event for the facility is estimated to be 3.14 inches, based on the National Oceanic and Atmospheric Administration (NOAA) *Atlas 14, Volume 6, Version 2 – Precipitation at Buttonwillow (04-1244)*, March 2018.
21. The waste management facility is not within a 100-year flood plain based on the Federal Emergency Management Agency's (FEMA) Flood Insurance Rate Map, Community-Panel Number 060075 06029C1750E, dated 2 March 2018.

## **SURFACE WATER AND GROUNDWATER CONDITIONS**

22. The facility is situated within the Tulare Lake Basin (Basin). The Central Valley Water Board's *Water Quality Control Plan for the Tulare Lake Basin, Third Edition, May 2018* (Basin Plan) designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters within the Basin.
23. Surface drainage is toward the East Side Canal, which is located approximately 1,000 feet southwest of the Facility. The East Side Canal is located in the Semitropic Hydrologic Area (558.70) of the Basin. Surface waters in the Semitropic Hydrologic Area are designated as Valley Floor Water in the Basin Plan.
24. Per the Basin Plan, designated surface water beneficial uses of Valley Floor Waters are agricultural supply (AGR); industrial service supply (IND); industrial process supply (PRO); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); wild life habitat (WILD); rare, threatened, or endangered species (RARE); and groundwater recharge (GWR).
25. The Facility overlies an aquifer system consisting of unconsolidated alluvial sediments and various fine-grained units, which influence lateral and vertical flow of groundwater beneath the Facility. There are three groundwater regimes beneath the Facility. The regimes are based on the occurrence of different hydraulic heads between closely spaced monitoring wells.
26. The first encountered groundwater ranges from 44 feet to 49 feet below the native ground surface at background well BT1-01 based on data in the Second Semi-Annual and Annual 2007 Monitoring Report. Also, groundwater was encountered in point of compliance wells BT1-18 and BT1-19 at 99.5 feet bgs and 103 feet bgs, respectively. Groundwater elevations at background monitoring well range from about 225 feet mean sea level (MSL) to 231 feet MSL and from 165 feet MSL to 177 feet MSL at the point of compliance wells.
27. Monitoring data indicate background groundwater quality for first encountered groundwater has electrical conductivity (EC) ranging between 3,780 and 3,830 micromhos per centimeter, with total dissolved solids (TDS) ranging between 1,300 and 2,700 milligrams per liter (mg/L).
28. The direction of groundwater flow is generally toward the southwest; however, groundwater flow northeast of the East Side Canal is to the northeast towards the Facility due to the recharge influence from the canal. The historical estimated average groundwater gradient is approximately 0.004 feet per foot and the estimated average groundwater velocity is 25 feet per year.
29. Based on data in the Second Semi-Annual and Annual 2017 Groundwater Monitoring Report, the generalized gradient is 0.08 feet per foot and the generalized groundwater velocity is 220 feet per year. Due to the changes in the groundwater gradient and groundwater elevations at the Facility, an updated Conceptual Site Model (CSM) and an evaluation of the adequacy of the detection monitoring program (DMP) must be submitted to the Central Valley Water Board.
30. Per the Basin Plan, the designated beneficial uses of the groundwater, as specified in the Basin Plan, are municipal and domestic supply (MUN), agricultural supply (AGR), and industrial service supply (IND).

## GROUNDWATER AND UNSATURATED ZONE MONITORING

31. The existing groundwater monitoring network for the landfill unit consists of one background monitoring well (BT1-01), two point of compliance wells (BT1-18 and BT1-19), and two CAP wells (BT2-04 and BT2-05).
32. At the time this Order was adopted, the Discharger's DMP for groundwater at the landfill satisfied the requirements contained in Title 27. However, as described in Finding No. 29, the Discharger will be evaluating the adequacy of the DMP.
33. The facility does not have a vadose zone monitoring system in accordance with Title 27, section 20415(d)(5). The WMU was constructed prior to the adoption of requirements for unsaturated zone monitoring, and the Discharger has demonstrated that it is infeasible to install an unsaturated zone monitoring system post-closure.
34. A Site Conceptual Model for the Facility, including geologic cross-sections, was provided in the 2002 EMP Report using data from monitoring wells existing at that time. These WDRs require that the Discharger submit an updated Site Conceptual Model to include data from the installation of detection monitoring program wells BT1-18 and BT1-19. See Evaluation Monitoring and Corrective Action Specification F.10; Title 27, sections 21750 (f) and (g); and Title 27, section 21760(a)(3).
35. 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 volatile organic compounds are not naturally occurring and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a landfill unit. Title 27, sections 20415(e)(8) and (9) allows the use of a non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a landfill unit in accordance with Title 27, sections 20415(b)(1)(B)2.-4. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.
36. 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.
37. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a landfill unit, the SPRRs specify a non-statistical method for the evaluation of monitoring data for non-naturally occurring compounds. The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a landfill unit. The presence of two non-naturally occurring waste constituents above their respective method detection limit (MDL), or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL) [a.k.a, laboratory reporting limit (RL)], indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing must be conducted to determine whether there has been a release from the landfill unit or the detection was a false detection. The detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of

false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

38. For a naturally occurring constituent of concern, the Title 27 requires concentration limits for each constituent of concern be determined as follows:
  - a. By calculation in accordance with a statistical method pursuant to Title 27, section 20415(e)(8); or
  - b. By an alternate statistical method meeting the requirements of Title 27, section 20415(e)(8)(E).
39. A Water Quality Protection Standard has been established for the Unit. The concentration limits for the constituents of concern are listed on Table V of MRP No. R5-2018-0071.

### **GROUNDWATER DEGRADATION AND CORRECTIVE ACTION**

40. Organic compounds that are not naturally occurring have been detected sporadically in groundwater along the point of compliance. The following organic compounds have been sporadically detected at trace concentrations since the beginning of the Detection Monitoring Program: Chloromethane, 1,1-dichloroethane, tetrachloroethene, and trichlorofluoromethane. Historically, the most frequently detected VOC in groundwater samples has been dichlorodifluoromethane (Freon 12); however, Freon 12 has not been detected in any groundwater samples from monitoring wells at the Facility since the second quarter of 2014.
41. The Discharger completed an Evaluation Monitoring Program (EMP) for the release of waste constituents to the groundwater. The nature of the release was demonstrated to be volatile organic compounds that originated from landfill gas. The extent of the release was a plume approximately 250 feet wide, 600 feet long, and 90 feet deep. The plume extended from the Unit to the southwest but did not occur beyond the boundaries of the waste management facility.
42. The Dischargers instituted a corrective action program (CAP) at the Facility pursuant to section 20430 of Title 27 (CCR) after the Central Valley Water Board determined (pursuant to Title 27 section 20425) that the assessment of the nature and extent of the release and the design of a Corrective Action Program had been satisfactorily completed.
43. The Discharger also completed an Engineering Feasibility Study in accordance with section 20425(c) of Title 27. The Engineering Feasibility Study concluded that the most technically and economically feasible corrective action alternative is monitored natural attenuation in conjunction with landfill gas extraction.
44. The Discharger has been monitoring the nature and extent of the release to groundwater and the progress of the CAP. VOC detections in groundwater have been very low historically. Based on monitoring data, natural attenuation is continuing to occur at the site. The nature and extent of the release are stable, and the corrective action program has progressed toward achieving the Water Quality Protection Standard. No VOCs were detected in groundwater samples during the 2017 second semiannual monitoring period.

## LANDFILL CLOSURE

45. The closure construction of the Facility began in February 2010 and was completed in April 2010. Closure activities included the construction of the evapotranspiration (ET) cover; construction of permanent surface water drainage structures; and construction of structures such as downdrains, v-ditches, and road crossings.
46. 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  $1 \times 10^{-6}$  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.
47. 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.
48. The Discharger submitted a design plan for the closure of the landfill in a Final Closure Plan dated April 2003. The Final Closure Plan and Post-Closure Maintenance Plan were deemed adequate in a letter from the Central Valley Water Board staff dated 26 March 2004. The plan proposed the construction of an engineered alternative in lieu of the prescriptive cover design specified in §21090(a). The proposed engineered alternative is an evapotranspirative design consisting of a vegetated soil layer.
49. The Discharger adequately demonstrated that construction of a Title 27 prescriptive standard cover would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative design. There is no clay source on-site or nearby and the cost of importing clay from off-site or mixing on-site soils with bentonite would cost substantially more than the alternative design. The Discharger further demonstrated that the proposed engineered alternative was consistent with the performance goals of the prescriptive standard, and afforded equivalent protection against water quality impairment by using a computer model that utilizes the Richards Equation and laboratory-derived parameters from samples of soil used in the construction of the cover.
50. An engineered alternative final cover system for the WMU was completed in 2010 and consists of a three-foot thick evapotranspirative vegetative layer that was placed directly over the landfill's intermediate one-foot cover soil. The ET cover soil was obtained from an on-site borrow area located south of the landfill.
51. Side slopes for the closed landfill are sloped at 3H:1V and include 15-foot wide benches every 50 vertical feet as required by Title 27.
52. 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.

### LANDFILL POST-CLOSURE MAINTENANCE

53. The Discharger submitted a 2015 *Final Postclosure Maintenance Plan* for post-closure maintenance of the Facility. 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, groundwater monitoring wells, access roads, landfill gas system, groundwater corrective action 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.
54. Once every five years during the post-closure maintenance period, aerial photographic maps and/or survey 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.
55. 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

56. Title 27, sections 21840 and 22211 requires a cost estimate for landfill post-closure maintenance. The Discharger's 2015 *Final Post Closure Maintenance Plan* includes a cost estimate for landfill post-closure maintenance. The amount of the cost estimate for post-closure maintenance in 2015 dollars is \$873,210. 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 \$893,407.
57. Title 27, section 22221 requires a cost estimate for corrective action of all known or reasonably foreseeable releases. The Discharger submitted a 2015 cost estimate of \$416,455 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 \$446,868.
58. 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 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.

### CEQA AND OTHER CONSIDERATIONS

59. 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.
60. This order implements:
- a. *The Water Quality Control Plan for the Tulare Lake Basin, Third Edition, May 2018*;
  - 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; and
  - 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.
61. Based on the threat and complexity of the discharge, the facility is determined to be classified 3-B as defined below:
- a. Category 3 threat to water quality, defined as, "Those discharges of waste that could degrade water quality without violating water quality objectives, or could cause a minor impairment of designated beneficial uses as compared with Category 1 and Category 2."
  - 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."
62. In October 1968, the State Water Resources Control Board (State Water Board) adopted its *Statement of Policy With Respect to Maintaining High Quality of Waters in California*, State Water Board Order WQ 68-16 (hereinafter "Anti-Degradation Policy"). Incorporated into the Central Valley Water Board's Basin Plan, the policy limits the board discretion to authorize the degradation of "high-quality waters," defined as where water quality is more than sufficient to support beneficial uses designated in the Basin Plan. Whether or not a water is a "high-quality" is determined on a constituent-by-constituent basis, which means that an aquifer can be considered "high-quality" with respect to some constituents, but not others. (State Water Board Order No. WQ 91-10.)
63. 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.

64. Anti-Degradation Policy does not apply to the discharge of waste to Buttonwillow Sanitary 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.
65. 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 proposed to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of having discharged or discharging, or who proposed 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."
66. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-2018-0071" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharged the waste subject to this Order.

#### **PROCEDURAL REQUIREMENTS**

67. 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.
68. 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.
69. The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.
70. 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 No. R5-2007-0091 is rescinded except for purposes of enforcement, and that the County of Kern, 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 additional waste is prohibited.
2. The waste shall not cause pollution or a nuisance as defined by the California Water Code, Section 13050.
3. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the Unit if such waste constituents could migrate to waters of the State - in either the liquid or the gaseous phase - and cause a condition of nuisance, degradation, contamination, or pollution.
4. The cessation of any corrective action measure, including landfill gas extraction, is prohibited without written Executive Officer approval. If routine maintenance or a breakdown results in cessation of corrective action for greater than 24 hours, the Discharger shall notify Board staff.
5. The Discharger shall comply with all applicable Standard Prohibitions listed in Section C of the Standard Provisions and Reporting Requirements (SPRRs) dated December 2015.

#### **B. DISCHARGE SPECIFICATIONS**

1. 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.
2. 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.
3. The Discharger shall comply with all Standard Discharge Specifications listed in Section D of the SPRRs dated December 2015.

#### **C. FACILITY SPECIFICATIONS**

1. The Discharger shall comply with all Standard Facility Specifications listed in Section E of the SPRRs dated December 2015.

#### **D. POST-CLOSURE MAINTENANCE SPECIFICATIONS**

1. Every five years, the Discharger shall submit, pursuant to Title 27, section 21090(e)(2), an iso-settlement map accurately depicting the estimated total change in elevation of each portion of the final cover. This map shall show the total lowering of the surface elevation of the final cover relative to the baseline topographic map and shall indicate all areas where visually

noticeable differential settlement may have been obscured by grading operations. The map shall be drawn to the same scale and contour interval as the baseline topographic map.

2. The Discharger shall comply with all Standard Closure and Post-Closure Specifications listed in Section G of the SPRRs.

#### **E. FINANCIAL ASSURANCE SPECIFICATIONS**

1. The Discharger shall obtain and maintain assurances of financial responsibility with CalRecycle for post-closure maintenance for the landfill in at least the amounts described in Finding 56, 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 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 described in Finding 57. 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.
3. The Discharger shall comply with all Standard Financial Assurance Specifications listed in Section H of the SPRRs dated December 2015.

#### **F. MONITORING SPECIFICATIONS**

1. The Discharger shall comply with the detection monitoring program provisions of Title 27 for groundwater, and in accordance with MRP No. R5-2018-0071, and the Standard Monitoring Specifications listed in Section I of the SPRRs.
2. The Discharger shall comply with the MRP No. R5-2018-0071, which is incorporated into and made part of this Order.
3. The Discharger shall monitor the final cover in accordance with the Post-Closure Maintenance Plan and the MRP No. R5-2018-0071.
4. The Discharger shall comply, for any landfill unit in a corrective action monitoring program, with the corrective action monitoring program provisions of Title 27, MRP R5-2018-0071, and the Standard Monitoring Specifications listed in Section I of SPRRs.
5. The Discharger shall comply with the Water Quality Protection Standard as specified in this Order, MRP R5-2018-0071, and the SPRRs.

6. 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 the Water Quality Protection Standard and MRP No. R5-2018-0071.
7. 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 No. R5-2018-0071 and the Standard Monitoring Specifications in Section I of the SPRRs.
8. As specified in MRP No. R5-2018-0071, 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.
9. The Discharger shall comply with all applicable Standard Monitoring Specifications and Response to a Release specifications listed in Sections I and J of the SPRRs.
10. By **1 June 2019**, the Discharger shall submit an updated Site Conceptual Model and Detection Monitoring Program with hydrogeologic cross-sections showing monitoring wells, the unsaturated zone, co-related zones, the uppermost aquifer, the water table, the base of each unit, and other relevant information. See Finding 34 and Provision G.7.B.

## **G. PROVISIONS**

1. The Discharger shall maintain at its office a copy of this Order at their office, including the MRP No. R5-2018-0071 and the 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 all regulatory agency personnel.
2. The Discharger shall comply with all applicable provisions of Title 27 and Subtitle D that are not specifically referred to in this Order.
3. The Discharger shall comply with MRP No. R5-2018-0071, 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 Subtitle D and/or 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.
7. 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>
<b>A. Financial Assurance Review</b>	
1. Annual Review of Financial Assurance for post-closure maintenance. (See Financial Assurance Specification E. 1).	<b>1 June (annually)</b>
2. Annual Review of Financial Assurance for initiating and completing corrective action. (See Financial Assurance Specification E. 2).	<b>1 June (annually)</b>
<b>B. Updated Conceptual Site Model and Detection Monitoring Program</b>	
Submit an updated Conceptual Site Model and Detection Monitoring Program for review and approval, pursuant to Title 27, subchapter 3, article 1. (See Monitoring Specification F. 10).	<b>1 June 2019</b>
<b>C. Water Quality Protection Standard Report</b>	
Submit an updated WQPS Report for Review and approval, pursuant to Title 27, Subchapter 3, article 1.	<b>1 June 2019</b>
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 <a href="http://geotracker.waterboards.ca.gov">http://geotracker.waterboards.ca.gov</a> , 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](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: [centralvalleyfresno@waterboards.ca.gov](mailto:centralvalleyfresno@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:

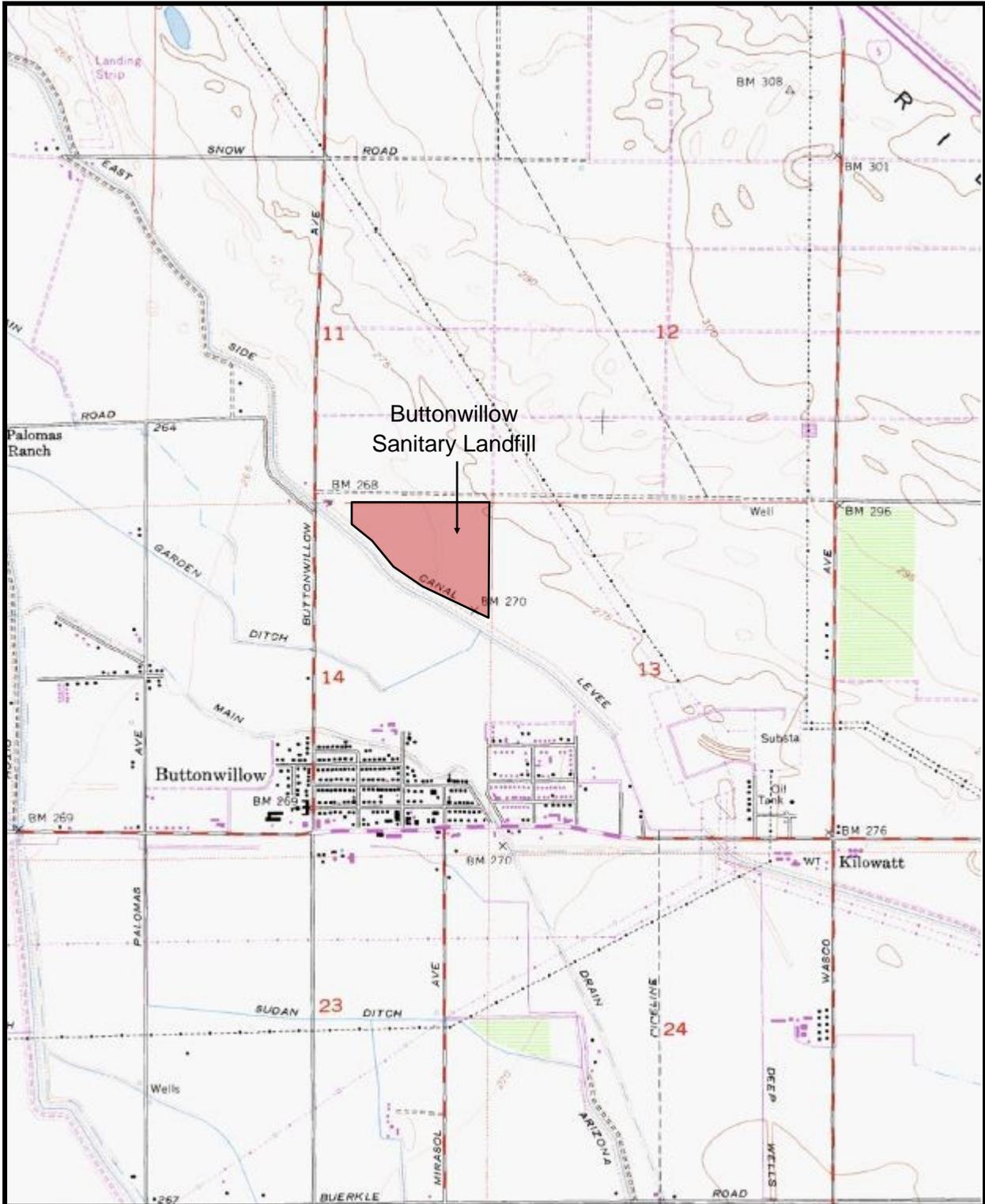
Attention:	Title 27
Report Title	
Geotracker Upload ID	L10001684814
Discharger name:	Kern County Public Works Department
Facility name:	Buttonwillow Sanitary Landfill
County:	Kern
CIWQS place ID:	210948

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 October 2018.

*Original Signed By*

\_\_\_\_\_  
PATRICK PULUPA, Executive Officer

MM

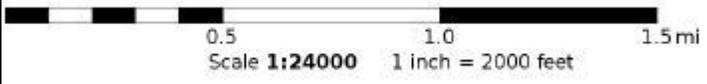


Buttonwillow  
Sanitary Landfill

**EXPLANATION**



Waste Management  
Facility Boundary



Base Map Source: USGS 7.5' Buttonwillow Quadrangle

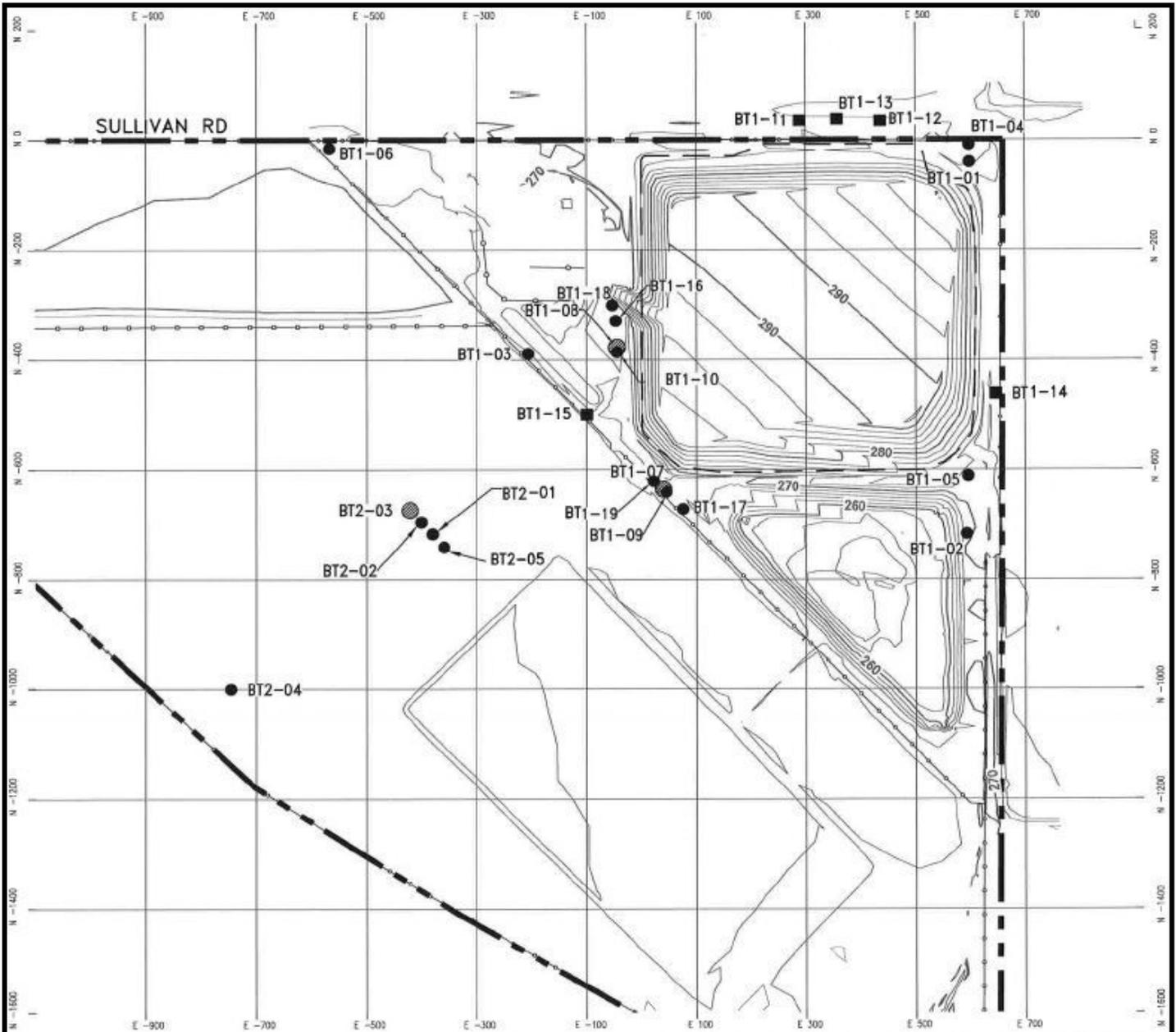
07/02/2018 (MM)

**ATTACHMENT A**

ORDER NO. R5-2018-0071

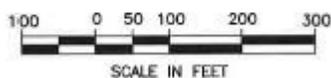
WASTE DISCHARGE REQUIREMENTS  
FOR  
COUNTY OF KERN  
POST-CLOSURE MAINTENANCE AND  
CORRECTIVE ACTION  
BUTTONWILLOW SANITARY LANDFILL

KERN COUNTY



### EXPLANATION

-  Property Boundary
-  Approximate Limit of Refuse
-  Groundwater Monitoring Well
-  Landfill Gas Monitoring Well
-  Destroyed Groundwater Monitoring Well



### ATTACHMENT B

ORDER NO. R5-2018-0071  
 WASTE DISCHARGE REQUIREMENTS  
 FOR  
 COUNTY OF KERN  
 BUTTONWILLOW SANITARY LANDFILL  
 POST-CLOSURE MAINTENANCE AND  
 CORRECTIVE ACTION

KERN COUNTY

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2018-0071  
FOR  
COUNTY OF KERN  
BUTTONWILLOW SANITARY LANDFILL  
CLASS III LANDFILL  
POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION

KERN COUNTY

This Monitoring and Reporting Program (MRP) is an order independently issued pursuant to Water Code section 13267 and is also incorporated as part of Waste Discharge Requirements (WDRs) Order R5-2018-0071. The MRP requires (a) groundwater; (b) facility monitoring, maintenance, and reporting; and (c) financial assurances reporting pursuant to California Code of Regulations, title 27 (Title 27), section 20005 et seq., as well as WDRs Order R5-2018-0071, and the Standard Provisions and Reporting Requirements for Nonhazardous Solid Waste Discharges Regulated by Subtitle D and/or Title 27, December 2015 Edition (SPRRs) attached thereto.

Pursuant to WDRs Order R5-2018-0071, the Discharger is ordered to comply with this MRP. The Discharger shall not implement any changes to this MRP unless a revised version is issued by the Central Valley Regional Water Quality Control Board (Central Valley Water Board) or its Executive Officer.

**A. MONITORING**

The Discharger shall comply with the detection 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 F of the WDRs. All monitoring shall be conducted in accordance with the most recently approved *Sample Collection and Analysis Plan*, which includes quality assurance/quality control standards.

All compliance monitoring wells established for the detection monitoring program (DMP) shall constitute the monitoring points for the groundwater Water Quality Protection Standard (WQPS). All detection monitoring program groundwater monitoring wells and leachate monitoring points shall be sampled and analyzed for monitoring parameters and constituents of concern (COCs) as set forth in Tables I through IV.

The Discharger may use alternative analytical test methods, including new United States Environmental Protection Agency (USEPA) approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program, 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	Leachate Seep Monitoring
A.3	Final Cover Monitoring
A.4	Facility Monitoring

## 1. Groundwater Monitoring

The Discharger shall operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of Title 27, sections 20415 and 20420. The detection monitoring system shall be certified by a California licensed professional civil engineer or geologist meeting the requirements of Title 27. The current groundwater detection monitoring system meets the applicable requirements of Title 27. The Discharger shall revise the groundwater detection monitoring system (after review and approval by Central Valley Water Board staff) as needed.

The current groundwater monitoring network shall consist of the following:

Well	Status
BT1-01	Background
BT1-18	Point of Compliance
BT1-19	Point of Compliance
BT2-04	Corrective Action Program
BT2-05	Corrective Action Program

Groundwater samples shall be collected from the background wells, compliance monitoring wells, 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 set forth 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.

**Once per quarter**, the Discharger shall measure the groundwater elevation in each well, determine groundwater flow direction, and estimate groundwater flow rates 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 every five years for the COC monitoring specified in Table I shall be collected and analyzed in accordance with the methods listed in Table IV. 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. Leachate Seep Monitoring

**Leachate Seep Monitoring:** Leachate that seeps to the surface from a landfill unit shall be sampled and analyzed for the Field and Monitoring Parameters listed in Table II 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 **MRP section B.3**.

### 3. Final Cover Monitoring

The Discharger shall monitor the final cover in accordance with the provisions in the Final Closure and Post-Closure Maintenance Plan. The pan lysimeter(s) shall be checked for the presence of water on a quarterly basis. The volume of water discovered in the pan lysimeter(s) shall be reported in the Annual Monitoring Report.

Discharger shall determine if significant moisture infiltration has occurred, per Monitoring Specification F. 3. of WDRs Order R5-2018-0071. The results shall be reported in the in the annual monitoring report due 1 February following each monitoring year.

### 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 problems 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 **MRP section B.4**.

#### 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 problems 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 **MRP section B.5**.

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

For closed landfill units, 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, this map shall show the total lowering of the surface elevation of the final cover, relative to the baseline topographic map. (See Title 27, § 21090, subd. (e)(1), (2)) Reporting shall be in accordance with **MRP section B.6**. The next iso-settlement survey shall be conducted in **2021** and shall be submitted by **30 April 2021**.

**d. Standard Observations**

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

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

The Standard Observations shall include:

- 1) For the landfill units:
  - a) Evidence of ponded water at any point on the landfill cover;
  - b) Evidence of erosion and/or of day-lighted refuse; and
  - c) Evidence of leachate seeps.
- 2) Along the perimeter of the landfill units:
  - a) Evidence of leachate seeps, estimated size of affected area, and flow rate (show affected area on map);
  - b) Evidence of erosion and/or of day-lighted refuse; and
  - c) Evidence of leachate seeps.

Results of Standard Observations shall be submitted in the annual monitoring reports required in **MRP section B.2.**

**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	31 March, 30 September	<b>31 May, 30 November</b>
B.2	Annual Monitoring Report	31 December	<b>30 April</b>
B.3	Leachate Seep Reporting	Continuous	<b>Immediately &amp; 7 Days</b>
B.4	Annual Facility Inspection Report	31 October	<b>15 November</b>
B.5	Major Storm Event Reporting	Continuous	<b>7 days from damage discovery</b>

B.6	Survey and Iso-Settlement Map for Closed Landfills	Every Five Years	<b>30 April 2021 &amp; Every Five Years Thereafter</b>
B.7	Financial Assurances Report	31 December	<b>1 June</b>

The Discharger shall enter all monitoring data and reports required under the MRP, including discharge location data, and pdf monitoring 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: [centralvalleyfresno@waterboards.ca.gov](mailto:centralvalleyfresno@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
Report Title	
Geotracker Upload ID	L10001684814
Discharger name:	Kern County Public Works Department
Facility name:	Buttonwillow Sanitary Landfill
County:	Kern
CIWQS place ID:	210948

### REPORTING REQUIREMENTS

The Discharger shall submit monitoring reports **semiannually** with the data and information as required herein, and as required per WDRs Order R5-2018-0071 and the SPRRs attached thereto (particularly, Section I [Standard Monitoring Specifications] and Section J [Response to a Release]). The Discharger shall arrange its reported monitoring 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.

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 site 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:

- a) 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;
- b) Date, time, and manner of sampling;
- c) Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
- d) Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e) Calculation of results; and
- f) Results of analyses, and the MDL and 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 **31 May** and **30 November**. Each semiannual monitoring report shall contain at least the following:
  - a) For each groundwater monitoring point addressed by the report, descriptions 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 quarterly groundwater flow rate 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 taken prior to the collection of the water quality data submitted in the report (See Title 27, § 20415, subd. (e)(15).).
  - d) Cumulative tabulated monitoring data for all monitoring points and constituents for groundwater, and leachate. Concentrations below the laboratory reporting limit shall not be reported as "ND" unless the reporting limit is also given in the table. Otherwise they shall be reported "<" the reporting limit (e.g., <0.10). Units shall be as required in Tables I and II 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 monitoring and control facilities, and of the run-off/run-on control facilities. Include information about the required notification and corrective action in Standard Facility Specification E.13 of the SPRRs.
  - h) A summary of all Standard Observations for the reporting period required in MRP Section A.4.d, above.
  - i) A summary of inspection, leak search, and repair of final covers on any closed landfill units 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.
  - j) A discussion of the status and an evaluation of the effectiveness of the CAP.
2. **Annual Monitoring Report:** The Discharger shall submit an Annual Monitoring Report to the Central Valley Water Board by **30 April** 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, Piper graph or 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 forms necessary for statistical analysis, facilitating periodic review. (See Title 27, § 20420, subd. (h).)

- 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 quarterly and submitted annually.
  - e) A comprehensive discussion of the compliance record, and the result of any corrective actions taken or planned 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. **Leachate 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 II** (see below), 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. (See MRP Section A.4.a.)
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. (See MRP Section A.4.b.)
6. **Survey and Iso-Settlement Map for Closed Landfills:** The Discharger shall conduct a survey and submit an iso-settlement map for each closed area of the landfill every five years pursuant to Title 27, section 21090, subdivision (e). (See MRP § A.4.c.) The next report is due by **30 April 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. (See WDRs Order R5-2018-0071, Financial Assurances Specifications E.1–E.3.)

## **C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD**

### **1. Water Quality Protection Standard (WQPS) Report**

For each Waste Management Unit (WMU), the WQPS shall consist of all COCs, the concentration limit for each constituent of concern, the verification retesting procedure to confirm measurably significant evidence of a release, the point of compliance, 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 point of compliance 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 surface and ground water** that could be affected in the event of a release from a WMU or portion of a unit. 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 surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map shall include the point of compliance in accordance with Title 27, section 20405.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
- d. Include a proposed statistical method for calculating concentration limits for monitoring parameters and constituents of concern that are detected in 10 percent or greater of the background data (naturally-occurring constituents) using a statistical procedure from Title 27, section 20415, subdivision (e)(8)(A)-(E).
- e. Include a retesting procedure to confirm or deny measurably significant evidence of a release pursuant to section 20415, subdivision (e)(8)(E) and section 20420, subdivisions (j)(1)-(3) of Title 27.

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 July 2002 *Water Quality Protection Standard Report*. The WQPS report proposed to use interwell data analysis to calculate concentration limits for the monitored constituents.

The WQPS shall be updated annually for each monitoring well using new and historical monitoring data.

## **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 all waste management units are those listed in Tables I and III for the specified monitored medium.

## **3. Constituents of Concern (COCs)**

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 the WMU, and are required to be monitored every five years. (See Title 27, §§ 20395, 20420, subd. (g).). The COCs for all waste management units at the facility are those listed in Tables I and II for the specified monitored medium, and Table IV. 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 constituent of concern, the concentration limit for each constituent of concern 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 approved method for calculating concentration limits were included in the 2002 *Water Quality Protection Standard Report*. The WQPS report proposed to use interwell data analysis to calculate concentration limits for the monitored constituents. The listed concentration limits are listed in Table V.

## **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 percent 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 percent 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**

The point of compliance for the water standard at each waste management unit is a vertical surface located at the hydraulically down gradient limit of the Unit that extends through the uppermost aquifer underlying the unit. The following are monitoring locations at the point of compliance:

### Point of Compliance Monitoring Wells

BT1-18

BT1-19

## **7. Compliance Period**

The compliance period for each waste management unit 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 waste management unit. The compliance period shall begin anew each time the Discharger initiates an evaluation monitoring program [See Title 27, § 20410].

## **8. Monitoring Points**

A monitoring point is a well, device, or location specified in the waste discharge requirements, which monitoring is conducted and at which the water quality protection standard 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.

The Discharger shall implement the above monitoring program on the effective date of this Program.

I, PATRICK PULUPA, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of a Monitoring and Reporting Program issued by the California Regional Water Quality Control Board, Central Valley Region, on 5 October 2018.

*Original Signed By*

\_\_\_\_\_  
PATRICK PULUPA, Executive Officer

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**TABLE I**  
**GROUNDWATER DETECTION MONITORING PROGRAM**

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
<b>Field Parameters</b>				
Groundwater Elevation	GWELEV	Ft. & 100ths, M.S.L.	Quarterly	Semiannual
Temperature	TEMP	°F	Semiannual	Semiannual
Electrical Conductivity	SC	µmhos/cm	Semiannual	Semiannual
pH	PH	pH units	Semiannual	Semiannual
Turbidity	TURB	Turbidity units	Semiannual	Semiannual
<b>Monitoring Parameters</b>				
Total Dissolved Solids (TDS)	TDS	mg/L <sup>1</sup>	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 III)		µg/L <sup>2</sup>	Semiannual	Semiannual
<b>5-Year Constituents of Concern (see Table IV)</b>				
Total Organic Carbon	TOC	mg/L	5 years	2021
Inorganics (dissolved)		µg/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)		µg/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		µg/L	5 years	" "
Chlorophenoxy Herbicides (USEPA Method 8151A)		µg/L	5 years	" "
Organophosphorus Compounds (USEPA Method 8141B)		µg/L	5 years	" "

<sup>1</sup>. Milligrams per liter

<sup>2</sup>. Micrograms per liter

**TABLE II**  
**LEACHATE SEEP MONITORING<sup>1</sup>**

<u>Parameter</u>	<u>Geotracker Code</u>	<u>Units</u>	<u>Sampling Frequency</u>	<u>Reporting Frequency</u>
<b>Field Parameters</b>				
Total Flow		Gallons	Monthly	Semiannual
Flow Rate	FLOW	Gallons/Day	Monthly	Semiannual
Electrical Conductivity	SC	µmhos/cm	Quarterly	Semiannual
pH	PH	pH units	Quarterly	Semiannual
<b>Monitoring Parameters</b>				
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 III)		µg/L	Annually	Annually
<b>5-Year Constituents of Concern (see Table IV)</b>				
Total Organic Carbon	TOC	mg/L	5 years	2021
Inorganics (dissolved)		µg/L	5 years	and every 5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)		µg/L	5 years	thereafter
Semi-Volatile Organic Compounds (USEPA Method 8270C or D)		µg/L	5 years	" "
Chlorophenoxy Herbicides (USEPA Method 8151A)		µg/L	5 years	" "
Organophosphorus Compounds (USEPA Method 8141B)		µg/L	5 years	" "

<sup>1</sup>. 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 III**

**MONITORING PARAMETERS FOR DETECTION MONITORING**

**Surrogates for Metallic Constituents:**

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
pH	PH
Total Dissolved Solids	TDS
Electrical Conductivity	SC
Chloride	CL
Sulfate	SO4
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
2-Hexanone (Methyl butyl ketone)	HXO2
Hexachlorobutadiene	HCBU
Methyl bromide (Bromomethene)	BRME
Methyl chloride (Chloromethane)	CLME

**TABLE III**  
**MONITORING PARAMETERS FOR DETECTION MONITORING**

**Continued**

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 IV**  
**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

<b><u>Inorganics (dissolved):</u></b>	<b><u>USEPA Method</u></b>	<b><u>Geotracker Code</u></b>
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):**

<b><u>COC Description</u></b>	<b><u>Geotracker Code</u></b>
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 IV**

**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 (1,1-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
1,3-Dichloropropane (Trimethylene dichloride)	DCPA13
2,2-Dichloropropane (Isopropylidene chloride)	DCPA22
1,1-Dichloropropene	DCP11
cis-1,3-Dichloropropene	DCP13C
trans-1,3-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
Trichlorofluoromethane (CFC- 11)	FC11

**TABLE IV**

**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

1,2,3-Trichloropropane	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
Diallate	DIALLATE

**TABLE IV**  
**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

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
1-Naphthylamine	AMINONAPH1

**TABLE IV**

**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

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; Di-n-propylNitrosamine)	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

**TABLE IV**  
**5-YEAR COCs & APPROVED USEPA ANALYTICAL METHODS**

**Continued**

**Chlorophenoxy Herbicides (USEPA Method 8151A):**

2,4-D (2,4-Dichlorophenoxyacetic acid)	24D
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)	DINOSEB
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)	SILVEX
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)	245T

**Organophosphorus Compounds (USEPA Method 8141B):**

Atrazine	ATRAZINE
Chlorpyrifos	CLPYRIFOS
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)	ZINOPHOS
Diazinon	DIAZ
Dimethoate	DIMETHAT
Disulfoton	DISUL
Methyl parathion (Parathion methyl)	PARAM
Parathion	PARAE
Phorate	PHORATE
Simazine	SIMAZINE

**TABLE V**  
**WATER QUALITY PROTECTION STANDARD CONCENTRATION LIMITS**

<b><u>Constituents</u></b>	<b><u>Units</u><sup>1</sup></b>	<b><u>Proposed Concentration Limit</u></b>
<b>Monitoring Parameters</b>		
Chloride	mg/L	923
Nitrate nitrogen	mg/L	42
Sulfate	mg/L	410
Total Dissolved Solids (TDS)	mg/L	2,700
<b>Inorganics</b>		
Aluminum	µg/L	1,355
Antimony	µg/L	MDL
Arsenic	µg/L	144
Barium	µg/L	236
Beryllium	µg/L	MDL
Cadmium	µg/L	MDL
Chromium	µg/L	40
Cobalt	µg/L	MDL
Copper	µg/L	30
Hexavalent Chromium	µg/L	MDL
Iron	µg/L	1,105
Lead	µg/L	30
Manganese	µg/L	1,400
Mercury	µg/L	MDL
Nickel	µg/L	80
Selenium	µg/L	17
Silver	µg/L	MDL
Thallium	µg/L	MDL
Tin	µg/L	MDL
Vanadium	µg/L	250
Zinc	µg/L	MDL
Carbonate	mg/L	17
Total Cyanide	µg/L	MDL
Total Sulfide	µg/L	MDL
Volatile Organic Constituents (Method 8260)	µg/L	MDL
Semivolatile Organic Constituents (Method 8270)	µg/L	MDL
Chlorinated Herbicides (Method 8151A)	µg/L	MDL
Organophosphorus Constituents (Method 8141A)	µg/L	MDL

<sup>1</sup>mg/L = milligrams per liter; µg/L = micrograms per liter

CENTRAL VALLEY REGIONAL WATER QUALITY CONTROL BOARD

ORDER NO. R5-2018-0071

WASTE DISCHARGE REQUIREMENTS

COUNTY OF KERN  
BUTTONWILLOW SANITARY LANDFILL  
CLASS III LANDFILL  
POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION  
KERN COUNTY

**INFORMATION SHEET**

County of Kern owns and manages the Buttonwillow Sanitary Landfill (Facility), which is located about one mile north of Buttonwillow, California. The Facility is situated on a 70.63-acre property, and consists of one unlined waste management unit (WMU) approximately 7.7 acres in size. The Facility's landfill operations began in September 1972 and ceased accepting waste in September 1998. Closure construction began in February 2010 and was completed in April 2010. Final closure was accomplished by construction of an evapotranspirative cover as an engineered alternative.

On 14 June 2001, the Central Valley Water Board classified the Facility as a Class III waste disposal site. On 22 June 2007, the Central Valley Water Board adopted Order No. R5-2007-0091, which continued to classify the Facility as a Class III waste disposal site in accordance with California Code of Regulations, title 27 (Title 27). This Order continues this classification.

The site is near the western edge of the San Joaquin Valley. The climate is semi-arid, with hot, dry summers and cool winters. The average annual precipitation is 3.14 inches of precipitation and the mean pan evaporation is 53.67 inches. The site is not within a 100-year floodplain according to FEMA data.

The closest Holocene fault is the San Andreas Fault, which is located approximately 22 miles west of the landfill. The magnitude of the maximum probable earthquake is 8.25. The maximum credible acceleration for the site is 0.24g.

Surface drainage is toward the Eastside Canal in the Semitropic Hydrologic Area (558.70) of the Tulare Lake Basin. Surface waters in the Semitropic Hydrologic Area are designated as Valley Floor Waters in the Basin Plan.

Land within 1,000 feet of the site is used for irrigated agriculture.

The first encountered groundwater ranges from 44 feet to 49 feet below the native ground surface at background well BT1-01 based on data in the Second Semi-Annual and Annual 2007 Monitoring Report. Also, groundwater was encountered in point of compliance wells BT1-18 and BT1-19 at 99.5 feet bgs and 103 feet bgs, respectively. Groundwater elevations at background monitoring well range from about 225 feet mean sea level (MSL) to 231 feet MSL and from 165 feet MSL to 177 feet MSL at the point of compliance wells.

The direction of groundwater flow is generally toward the southwest; however, groundwater flow northeast of the East Side Canal is to the northeast towards the Facility due to the recharged influence from the canal. The historical estimated average groundwater gradient is

approximately 0.004 feet per foot and the estimated average groundwater velocity is 25 feet per year. Based on data in the Second Semi-Annual and Annual 2017 Groundwater Monitoring Report, the generalized gradient is 0.08 feet per foot and the generalized groundwater velocity is 220 feet per year. Due to the changes in the groundwater gradient and groundwater elevations at the Facility, the Conceptual Site Model (CSM) must be updated and submitted to the Central Valley Water Board.

Volatile organic compounds are often detected in a release from a landfill, and are the primary waste constituents detected in groundwater beneath a municipal solid waste landfill. Since volatile organic compounds are not naturally occurring, and thus have no background value, they are not amenable to the statistical analysis procedures contained in Title 27 for the determination of a release of wastes from a Unit. Title 27 does provide for the non-statistical evaluation of monitoring data that will provide the best assurance of the earliest possible detection of a release from a Unit. However, Title 27 does not specify a specific method for non-statistical evaluation of monitoring data.

A Regional Water Board may specify a non-statistical data analysis method pursuant to Section 20080(a)(1) of Title 27. In order to provide the best assurance of the earliest possible detection of a release of non-naturally occurring waste constituents from a Unit, this Order specifies a non-statistical method for the evaluation of monitoring data.

The specified non-statistical method for evaluation of monitoring data in this Order provides two criteria (or triggers) for making the determination that there has been a release of waste constituents from a Unit. The presence of two waste constituents above their respective method detection limit (MDL), or one waste constituent detected above its practical quantitation limit (PQL), indicates that a release of waste from a Unit has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the Unit, or there is a source of the detected constituents other than the landfill, or the detection was a false detection. Although the detection of one waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release in accordance with Title 27, the detection of two 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 detecting one waste constituent above its MDL as a trigger.

The volatile organic compound dichlorodifluoromethane (Freon 12) has frequently been detected. The Discharger completed an Evaluation Monitoring Program for the release of waste constituents to the groundwater. The nature of the release was demonstrated to be migration of volatile organic compounds in landfill gas to the groundwater. The plume extended from the Unit to the southwest and did not occur beyond the boundaries of the waste management facility.

The Discharger completed an Engineering Feasibility Study in accordance with Section 20425(c) of Title 27. The Engineering Feasibility Study concluded that the most technically and economically feasible corrective action alternative is monitored natural attenuation in conjunction with landfill gas extraction. Freon 12 has not been detected in any groundwater samples from monitoring wells at the Facility since the second quarter of 2014.

The Discharger adequately demonstrated that construction of a Title 27 prescriptive standard cover was unreasonable and unnecessarily burdensome when compared to the proposed

engineered alternative. There is no clay source on-site or nearby and the cost of importing clay from off-site or mixing on-site soils with bentonite would cost substantially more than the alternative design. The Discharger further demonstrated that the proposed engineered alternative was consistent with the performance goals of the prescriptive standard, and afforded equivalent protection against water quality impairment by using a computer model that utilizes the Richards Equation and laboratory-derived parameters from samples of soil used in the construction of the cover.

The revision of waste discharge requirements for existing facilities is categorically exempt from the California Environmental Quality Act (CEQA), Public Resource Code section 21000 et seq., pursuant to section 15301 of the CEQA Guidelines (Cal. Code Regs., tit. 14, § 15000 et seq.)