



Lahontan Regional Water Quality Control Board

November 18, 2021

WDID No. 6B360304005

TO: ATTACHED MAILING LIST

Revised Waste Discharge Requirements for San Bernardino County Solid Waste Management Division, Barstow Class III Landfill, Class II Surface Impoundments and Septage Sludge Landfarm, San Bernardino County

Enclosed are tentative Revised Waste Discharge Requirements for the subject line facility, located in San Bernardino County. The Lahontan Regional Water Quality Control Board (Water Board) requests that you review the enclosed documents and provide us with your written comments no later than **January 5, 2022**. Please send your comments to the Water Board's email address at Lahontan@waterboards.ca.gov and include **Barstow Class III Landfill WDID No. 6B360304005 Comments** in the subject line text. If you do not have access to the internet, you may mail your comments to the Water Board's Victorville office at the address shown on this letter to the attention of Christina Guerra.

The Water Board will consider adopting the Revised Waste Discharge Requirements at its regular meeting scheduled for March 9, 2022. As required by the California Code of Regulations, title 27, section 21730, notice of the meeting and the enclosed documents are being circulated not less than 45 days before the scheduled meeting. You can view the Water Board's meeting agenda 10 days before the meeting on our web site at: www.waterboards.ca.gov/lahontan (click on Agenda). If you need further information regarding this meeting, please contact our office at (760) 241-6583.

If you need further information regarding this agenda item, please contact Christina Guerra at (760) 241-7333 or at christina.guerra@waterboards.ca.gov or Jan Zimmerman at (760) 241-7376 or jan.zimmerman@waterboards.ca.gov.

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Enc: Tentative Revised Waste Discharge Requirements and Monitoring and Reporting Program for the Barstow Class III Landfill, Class II Surface Impoundments, and Septage Sludge Landfarm

PETER C. PUMPHREY, CHAIR | MICHAEL R. PLAZIAK, PG, EXECUTIVE OFFICER

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**BOARD ORDER NO. R6V-2022-TENTATIVE
WDID NO. 6B360304005**

REVISED WASTE DISCHARGE REQUIREMENTS

FOR

**SAN BERNARDINO COUNTY SOLID WASTE MANAGEMENT DIVISION
BARSTOW CLASS III LANDFILL, CLASS II SURFACE IMPOUNDMENTS, AND
SEPTAGE SLUDGE LANDFARM**

San Bernardino County

The California Regional Water Quality Control Board, Lahontan Region (Water Board) finds:

1. Discharger

The County of San Bernardino, Solid Waste Management Division, owns and operates the Barstow Class III Landfill (Landfill), Class II Surface Impoundments (Surface Impoundments), and Class II Land Treatment Unit (Septage Sludge Landfarm), and is referred to as the “Discharger.” On March 17, 2021, the Discharger submitted a Revised Joint Technical Document (JTD); a final design plan for an expansion of the existing landfill, Phase 1B Design Plan was submitted on January 29, 2021. The information in the JTD and Phase 1B Design Plan constitute a complete Report of Waste Discharge (RWD). The RWD/JTD contains the applicable information required in California Code of Regulations (CCR), title 27.

2. Location

The Facility is located at 32553 Barstow Road (Highway 247), approximately three miles south of the City of Barstow, San Bernardino County, within Sections 30, 31, and 32, Township 9 West, Range 1 West, San Bernardino Baseline and Meridian. Attachment A of this Order shows the Facility location.

3. Facility

The existing waste management units (WMUs) include unlined and lined portions of the Landfill, the Class II Land Treatment Unit, and three Class II Surface Impoundments all sited on approximately 102.3 acres of a total 645-acre site. The Discharger has proposed to expand, ultimately, the lined areas of the Landfill south of the existing Class III Landfill into areas referred to as Phases 1B, 1C, 2, 3, and 4. The current expansion area is located south of the existing Landfill, encompasses 13.1 acres, and is referred to as Phase 1B.

For the purpose of this Order, the unlined portion of Barstow Class III Landfill is referred to as the “unlined Landfill,” the Phase 1A and Phase 1B as the “lined Landfill,” the Class II Surface Impoundments are referred to as the “Surface Impoundments,” and the Class II Land Treatment Unit is referred to as the “Landfarm.” For the purposes of this Order, the unlined Landfill, lined Landfill, Surface Impoundments, and Landfarm, are collectively referred to as the “Facility.” Future phases will be incorporated into the Facility as they are constructed. Attachment B of this Order is a layout of the existing WMUs and future landfill WMUs, including the proposed Phase 1B area.

4. Reason for Action

The Water Board is revising the WDRs and updating the Monitoring and Reporting Program (MRP) to prescribe requirements for the continued operation of the Facility, monitoring, and construction of the proposed Landfill expansion of the Class III WMU, Phase 1B and future phases. The Landfill expansion project is part of a regional County plan to reduce the number of active County operated landfills to five regional facilities, which includes the Barstow Class III Landfill.

5. Order History

- a. On August 11, 1984, the Water Board adopted Board Order No. 6-84-56, establishing WDRs for the Facility.
- b. On February 9, 1989, the Water Board adopted Board Order No. 6-89-33, establishing revised WDRs and rescinding Board Order No. 6-84-56.
- c. On September 9, 1993, the Water Board adopted Board Order No. 6-93-100, amending the WDRs to incorporate the requirements of Title 40, Code of Federal Regulations (40 CFR), Parts 257 and 258 (Subtitle D), as implemented in the State of California under State Water Resources Control Board (State Water Board) Resolution No. 93-62.
- d. On September 8, 1994, the Water Board adopted Board Order No. 6-89-33A1, amending the WDRs to include requirements for construction and operation of new lined Class II Surface Impoundments and for closure of the existing unlined Surface Impoundment.
- e. On July 17, 1997, the Water Board adopted Board Order No. 6-97-79, revising the WDRs and MRP to incorporate requirements of Board Order No. 6-93-100, to require implementation of a load-checking program for the Surface Impoundments, provide requirements for the construction and operation of the Landfarm, and establish limitations for specific constituents that may be present in the septage sludge and discharged to the Landfill. This Order rescinded Board Order Nos. 6-89-33, 6-89-33A1, and 6-93-100.

- f. On July 23, 2008, the Water Board adopted Board Order No. R6V-2008-0025, revising the WDRs to add requirements for one additional lined Class II Surface Impoundment and rescinding Board Order No. 6-97-79.
- g. On July 11, 2012, the Water Board adopted Board Order No. 6-2012-0037, revising the WDRs to include requirements for construction, operation, and monitoring of a lined landfill cell (the Phase 1 Borrow Area expansion) and approving an engineered alternative final cover for existing and future landfill WMUs.

6. Climate

The climate of the area is arid and is characterized by moist winters and long dry summers. Rain primarily occurs from November through April. The average annual rainfall is approximately 4.1 inches. The average temperature is 64 degrees Fahrenheit (°F) and ranges to an average high temperature in the summer of 103°F. Monsoonal thunderstorms provide some precipitation in the summer months. The estimated 100-year/24-hour precipitation event for the Facility is approximately 3.5 inches. The estimated 1000-year/24-hour precipitation event is 3.87 inches. The average annual pan evaporation rate is approximately 82 inches.

7. Land Uses

The Facility is in an unincorporated portion of San Bernardino County. The area immediately south of the Facility lies within the Ord-Rodman Desert Wildlife Management Area of the Western Mojave Recovery Unit for the Mojave population of the desert tortoise. Land use designations are: Resource Conservation (RC) south of the Facility, Rural Living (RL) north of the Facility, and RC/RL east and west of the Facility. The surrounding land is undeveloped with the exception of Barstow Road. There are no inhabited structures within 1,000 feet of the Facility.

8. Site Topography

The Facility is situated on the northwest flank of Daggett Ridge, a northwest-trending series of low-lying hills extending southeast from the town of Lenwood. Local topography is dominated by gentle to moderately steep hill slopes. The Facility overlies the top of a sub-ridge such that most of the area drainage slopes to the northeast towards the Mojave River. A smaller portion of the site drains to the southwest into Stoddard Valley.

9. Site Geology

The Facility is located in the north-central portion of the Mojave Desert geomorphic province of California and is situated within the northwest flank of Daggett Ridge, as described in Finding 8. Parts of several right-lateral, strike-slip faults are located within 62 miles of the site, including the Calico, Camp Rock-Emerson, Homestead

Valley, Harper Lake, Helendale, and Lenwood-Lockhart faults. Several of these are active fault systems including the Lenwood-Lockhart and Harper Lake. The age of displacement along these faults is Holocene (last 11,000 years), with movement demonstrated along the Lenwood-Lockhart fault (part of which is close to the site), within the past 200 years. The active Lenwood-Lockhart fault is included in an Alquist-Priolo Special Studies Zone and lies about 1,000 feet south of the Landfill expansion area. There is no evidence of recent displacement along faults traversing the Facility.

The Facility is underlain by Quaternary sedimentary deposits that unconformably overlie Tertiary (Miocene to Pliocene) sedimentary and volcanic rocks. Quaternary sediments consist of older alluvium with more recent surficial deposits, primarily coarse-grained conglomerates. Immediately south of the Landfill Phase 1A Borrow Area boundary are exposed Tertiary sediments consisting of siltstone, sandstone, and minor amounts of limestone. The dominant sediment material is poorly sorted (well-graded), coarse-grained silty sand with minor fine-grained gravel and owe their origin to coalescing alluvial fans emanating from nearby mountainous bedrock terrain. These young sediments are weakly cemented and poorly lithified.

10. Regional Hydrology

A well-developed, northwest- to west-trending ridge (Daggett Ridge) forms a drainage divide extending through the southwestern portion of the property. This watershed boundary separates the Lower Mojave and Middle Mojave sub-units of the Mojave Hydrologic Unit. Drainage is principally to the northeast towards the Mojave River. A smaller portion of the site drains to the southwest into Stoddard Valley.

11. Hydrogeology and Groundwater Quality

The Facility is within the Lower Mojave Hydrologic Area of the Mojave Hydrologic Unit. All surface water that enters the region either infiltrates into the groundwater basin, evaporates, or flows overland toward the Mojave River. There is no perennial surface water flow at the site.

The receiving groundwater beneath this Facility is the Lower Mojave River Valley groundwater basin. Southwest of the site, the northwest-trending Lenwood-Lockhart fault acts as a groundwater barrier restricting groundwater flow between the groundwater basins of the Lower Mojave River Valley and the Middle Mojave River Valley. Groundwater production wells in the region draw water from conglomerate units beneath Stoddard Valley southwest of the site, and along the margins of the Lower Mojave River Valley groundwater basin northeast of the site. Regional groundwater flow southwest of the site, in the Middle Mojave River Valley basin in the Stoddard Valley is to the northwest. Groundwater flow in the Lower Mojave River Basin, northeast of the Lenwood-Lockhart fault, is to the northeast.

As part of the Solid Waste Assessment Test (SWAT) Program, the Discharger drilled a boring at the Facility to a depth of 900 feet below ground surface during a 1988 investigation. That boring did not identify a saturated zone due to the drilling method and sampling procedures that were followed at that time. Because of the apparent great depth to groundwater at the Facility, a previous Order did not require groundwater monitoring but instead required unsaturated zone monitoring, which was intended to detect waste constituents that may be migrating downward from the Landfill to the underlying groundwater. In 2001, to assess the hydrogeology for the landfill expansion area, the Discharger installed three groundwater monitoring wells: one upgradient of the existing Facility, one downgradient, and one side gradient. Based on groundwater elevation data collected from these wells, groundwater occurs beneath the Facility at depths ranging from 748 to 767 feet below ground surface.

Groundwater at the site occurs in Quaternary fanglomerate deposits. Groundwater flow direction is generally to the northeast toward the Mojave River with a horizontal hydraulic gradient of approximately 0.022 feet per foot. The hydraulic conductivity is estimated to be between 0.003 and 0.3 feet per day. Using an estimated effective porosity of 35 percent, the calculated groundwater velocity is 0.008 to 1.2 feet per day.

Based on groundwater monitoring and analytical data from three groundwater monitoring wells installed at the Facility, groundwater quality beneath the site has not been affected by the waste discharges. Groundwater sampling of these wells shows concentrations of total dissolved solids (TDS) that range from 560 to 730 milligrams per liter (mg/L), chloride concentrations that range from 9.8 to 100 mg/L, nitrate concentrations that range from 0.028 to 2.0 mg/L (as nitrogen[N]); volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) have not been detected in groundwater, to date.

12. Waste Management Unit Classification and Authorized Disposal Sites

Pursuant to CCR, title 27, section 20260, the Landfill is classified as a Class III WMU and authorized to accept nonhazardous and inert solid wastes including municipal solid waste (MSW). The Landfill is defined as an MSW landfill in Subtitle D. Pursuant to CCR, title 27, section 20250, the Surface Impoundments and Land Treatment Unit (Landfarm) are classified as Class II WMUs and are authorized to accept designated waste.

The Facility receives waste from the City of Barstow and nearby communities. The Landfarm receives septage sludge from the Surface Impoundments. This Order expands the footprint of the authorized Landfill disposal site to include Phase 1B and future expansion phases shown in Attachment B of this Order. The only authorized disposal sites for septage and chemical toilet waste are the Surface Impoundments. The only authorized treatment site for septage sludge from the

Surface Impoundments is the Landfarm. The septage sludge is treated in the Landfarm to achieve effluent limitations contained in this Order; the only authorized disposal site for the treated septage sludge is the lined Landfill or other authorized off-site disposal facilities. The only authorized disposal site for leachate collected from the Landfill is the lined Landfill or other authorized off-site disposal facilities.

13. Waste Classification

The waste discharged to the Landfill is defined in CCR, title 27, sections 20220 and 20230, as non-hazardous and inert solid waste, respectively. The septage waste discharged to the Surface Impoundments is classified as designated waste in accordance with CCR, title 27, section 20210. The septage waste discharged to the Landfarm for treatment is classified in CCR, title 27, section 20210, as solid designated waste. The treated septage sludge from the Landfarm is classified as nonhazardous solid waste in CCR, title 27, section 20220.

14. Subtitle D Submittal Status

Subtitle D requirements became effective for this Landfill on April 9, 1994. Board Order Nos. 6-93-10037, 6-89-33A1, 6-97-79, R6V-2008-0037, and R6V-2012-0037 required the submittal of several items in order to comply with Subtitle D for the Landfill. The Discharger submitted complete information regarding the acceptance of liquids, the existing waste footprint, the distance from the Landfill to the nearest drinking water source, whether the Landfill is in a 100-year floodplain or a wetland, and Water Quality Protection Standard (WQPS). These items fulfilled the submittal requirements of Subtitle D, as implemented by State Water Board Resolution No. 93-62.

15. Description of Waste Management Units

a. Unlined Landfill

The unlined portion of the Landfill, a 47-acre refuse disposal footprint, began operations in 1963 and reached capacity and the final grading plan in 2014. This Order continues to document the unlined Landfill footprint, shown on Attachment B, as the limit of waste that is exempt from Subtitle D requirements for composite liners.

b. Existing Lined Landfill and Landfill Expansions

The Phase 1A Borrow Area is approximately 11.5-acres. The proposed Landfill expansion would occur into Phase 1B, an area approximately 13.1-acres, located south of the Phase 1A Borrow Area. Incremental landfill phase configurations are based on the fill sequencing anticipated over the life of the Landfill. The Phase 1A Borrow Area construction began in 2012 and this cell

will continue to accept waste until capacity is reached. Construction of each subsequent phase (Phase 1B through Phase 5) will begin prior to completion of waste filling operations in the previous phase area and each phase may be proposed to be carried out in multiple construction sequences.

The bottom liner and side slope liner systems of all existing and future lined Landfill units/lateral expansion areas (Phase 1 through Phase 5, as shown in Attachment B) must be constructed in accordance with the following composite liner designs.

The bottom liner system design, the flat bottom portion of the landfill cell, is to be constructed with the following, from top to bottom:

1. Minimum 24-inch thick protective cover soil layer;
2. Geotextile layer;
3. Minimum 9-inch thick Leakage Collection and Recovery System (LCRS) drainage layer;
4. Geotextile layer;
5. A 60-mil high-density polyethylene (HDPE) geomembrane (textured on both sides);
6. Geotextile-backed Geosynthetic Clay Liner (GCL) with a permeability of 3×10^{-9} centimeters per second (cm/s) or less; and
7. Minimum 12-inch thick prepared subgrade of screened on-site soil material with a hydraulic conductivity of 1×10^{-7} cm/s.

For areas of the bottom liner system design where additional encapsulated strengths are required, the liner system is to be constructed with the following, from top to bottom:

1. Minimum 24-inch thick protective cover soil layer;
2. Geotextile layer;
3. Minimum 9-inch thick LCRS drainage layer;
4. Geotextile layer;
5. A 60-mil HDPE geomembrane (textured on both sides);
6. Geotextile-backed GCL with a permeability of 3×10^{-9} cm/s or less;

7. A 60-mil HDPE geomembrane (texture on both sides); and
8. Minimum 12-inch thick prepared subgrade of screened on-site soil material with a hydraulic conductivity of 1×10^{-7} cm/s.

The slope liner system design, liner sections with gradients greater than 5:1 (horizontal to vertical) are to be constructed with the following, from top to bottom:

1. Minimum 24-inch thick protective cover soil layer;
2. Geotextile layer;
3. A 60-mil HDPE geomembrane single-sided textured side down;
4. Geotextile-backed GCL with a permeability of 3×10^{-9} cm/s; and
5. Minimum 12-inch thick prepared subgrade of screened on-site soil material with a hydraulic conductivity of 1×10^{-7} cm/s.

The slope liner system design, liner sections with gradients greater than 5:1 where additional encapsulated strengths are required, the liner system is to be constructed with the following, from top to bottom:

1. Minimum 24-inch thick protective cover soil layer;
2. Geotextile layer;
3. A 60-mil HDPE geomembrane single-sided textured side down;
4. Geotextile-backed GCL with a permeability of 3×10^{-9} cm/s;
5. A 60-mil-HDPE geomembrane (textured on both sides); and
6. Minimum 12-inch thick prepared subgrade of screened on-site soil material with a hydraulic conductivity of 1×10^{-7} cm/s.

Phase 1B is proposed for construction and is planned to be constructed similarly to the Phase 1A Borrow Area. Pursuant to CCR, title 27, section 21760, the Discharger has submitted a final design plan for Phase 1B that is consistent with liner specifications described in this Order. This Order requires the Discharger to submit a Final Design Plan for future phases that is compliant with the liner requirements specified in this Order.

c. Surface Impoundments

There are three active surface impoundments: the West Pond, East Pond, and South Pond, with surface areas of 1.2-acres, 1.29-acres, and 1.35-acres, respectively. Wastes accepted at the Surface Impoundments are septic tank septage and chemical toilet waste. The Discharger has developed a Septage Management Plan, comprising of a load checking program to prevent the discharge of industrial wastes containing VOCs and SVOCs to the Surface Impoundments. Although septage and chemical toilet waste can contain VOCs and SVOCs, it is not expected that the load checking program can feasibly eliminate all of these waste constituents. This Order acknowledges that septage and chemical toilet waste will contain low concentrations of VOCs and SVOCs and permits such discharge. This Order does not permit the discharge of industrial wastes to the Surface Impoundments and requires implementation of an approved Septage Management Plan.

The composite liner design for the Surface Impoundments consists of a double synthetic liner with an integrated LCRS, and consists of the following components from bottom to top:

1. Existing earth materials excavated and prepared (within 2 percent optimum moisture content and compacted to minimum of 90 percent of the maximum dry density) to design subgrade elevation;
2. A 12-ounce non-woven geotextile cushion layer;
3. A 60-mil double-sided textured HDPE secondary geomembrane;
4. Geocomposite HDPE geonet and non-woven geotextile LCRS drainage later;
5. A 60-mil double-sided textured HPDE primary geomembrane;
6. A 12-ounce non-woven geotextile cushion layer; and
7. A 4-foot thick protective cover soil layer.

The LCRS drains to a collection sump, approximately 30-feet deep. The total capacity in millions of gallons for each Surface Impoundment are as follows: West Pond 2.3; East Pond 2.3; South Pond 2.6.

d. Landfarm

The Landfarm is an unlined, bermed area that covers approximately 4.3 acres. The Landfarm provides an area for the aeration and treatment of septage sludge received from the Surface Impoundments. The treatment zone is

considered to be the native soil to a depth of five feet below the ground surface beneath the Landfarm. Only sludge generated from the Surface Impoundments and meeting a threshold of greater than or equal to 50 percent solids by weight is allowed to be discharged to the Landfarm.

16. Engineered Alternative to Prescriptive Standard for the Landfill Liner System

CCR, title 27, includes prescriptive standards for WMU construction and allows for engineered alternatives to such standards. The Discharger submitted an Alternative Liner Petition for the Barstow Class III Landfill for future Class III Liner Systems, dated January 29, 2008, and revised August 10, 2011. CCR, title 27, section 20080, subdivision (b), requires that alternatives shall only be approved where the Discharger demonstrates that: (1) the construction of prescriptive standard is not feasible because it unreasonably and unnecessarily burdensome and will cost substantially more than alternatives, which meet the criteria, or is impractical and will not promote attainment of applicable performance standards; and (2) there is a specific engineered alternative that is consistent with the performance goal of the prescriptive standard and affords equivalent protection against water quality impairment. The engineered alternative liner systems, as described in Finding No. 15.b of this Order, were approved with the adoption of Board Order No. R6V-2012-0037 and continues to be approved under this Order.

17. Action Leakage Rates

The Discharger has requested that the Water Board allow an action leakage rate (ALR) of liquid through the upper liner of the Surface Impoundments into the leakage collection sumps. The respective ALRs are based on as-built design dimensions and specifications of the Surface Impoundments and on a 1992, United States Environmental Protection Agency (USEPA) guidance document, *Action Leakage Rates for Leak Detection Systems, Supplemental Background Document for the Final Double Liners and Leak Detection Systems Rule for Hazardous Waste Landfills, Waste Piles, and Surface Impoundments*. The ALRs are specified in MRP No. R6V-2022-TENTATIVE and include requirements for monitoring and reporting leakage rates into the LCRS. The requirements also describe the response actions for the Discharger if the ALRs are exceeded.

18. Gas Extraction System

The Discharger has installed a landfill gas collection system at the existing Landfill to control off-site gas migration. The system consists of a series of gas collection wells interconnected by above-ground laterals and a main header pipe connected to a granular activated carbon (GAC) system. The Discharger proposes to expand this gas control/recovery system as the Landfill is expanded. Gas condensate is collected and gravity-flows to multiple low-point collection sumps. The condensate in the sumps are pumped twice a week into a transfer tank. The condensate in the transfer tank is transferred to a holding tank. When the holding tank is approximately 85% full, arrangements are made for the transfer of the condensate

to a regional landfill that has a flare system where the condensate can be destroyed. This Order does not allow for discharge of gas condensate at the Facility.

19. Alternative Daily Cover

The Discharger is proposing to use various nonhazardous and designated wastes as alternate daily cover (ADC) on the Landfill, including tarps, untreated wood, green waste, compost materials, dried sludge, ash, cement kiln dust, dredge spoils, shredded tires, processed construction and demolition debris, and contaminated soil. These WDRs require that for each type of waste proposed as ADC, the Discharger must first demonstrate that it does not pose a threat to water quality and meets the requirements under CCR, title 27, section 20705.

20. Treated Auto Shredder Waste

Treated (stabilized) auto shredder waste (TASW) is any non-recyclable waste from the shredding of automobile bodies (from which batteries, mufflers, mercury switches, and exhaust pipes have been removed), household appliances, and sheet metal. The Discharger proposes to discharge TASW as waste and for use as ADC and for beneficial reuse material (i.e. stabilization and erosion protection) in the lined Landfill. TASW from certain authorized facilities, under a waiver issued by the Department of Toxic Substances Control (DTSC), managed pursuant to CCR, title 22, section 66260.200(f) and DTSC Policy and Procedure No. 88-6, may be managed as nonhazardous solid waste. This Order prohibits the discharge of TASW to the lined Landfill if DTSC finds that TASW is a hazardous waste that must be managed at a Class I Landfill. The Discharger must obtain a nonhazardous waste classification from DTSC prior to discharge of TASW to the lined Landfill. This Order establishes discharge concentration limits for certain constituents found in TASW and requires the Discharger to submit a Sampling and Analysis Plan for TASW.

21. Per- and Polyfluoroalkyl Substances

Per- and polyfluoroalkyl Substances (PFAS) is a family of more than 5,000 man-made and mostly unregulated chemicals. They are mobile (highly mobile in water), persistent, and bioaccumulative. They have very different physical and chemical properties and are resistant to degradation in the environment, and when degradation occurs, it often results in the formation of other PFAS compounds. The key classes of concern are perfluoroalkyl sulfonic acids such as long-chain perfluorooctanesulfonate (PFOS) and perfluorooctanic acid (PFOA). PFAS are manufactured globally and have been used in the production of a wide range of industrial (aerospace, automotive, fire-fighting foams [Aqueous Film-Forming Foams or AFFF], and textile industries) and household products (non-stick products (e.g., Teflon™, water repellent textiles, carpet, polishes, and cleaning products). Non-industrial PFAS sources include waste disposal facilities and

wastewater treatment plants. People can be exposed to PFAS in various ways, including food, consumer products, and drinking water. Since these chemicals have been used in an array of consumer products, scientists have found PFAS compounds in the blood of nearly all people tested. Exposure through drinking water has become an increasing concern due to the tendency of PFAS to accumulate in groundwater.

Based on current available peer-reviewed studies on laboratory animals and epidemiological evidence in human populations, the USEPA has stated that studies conducted indicate that exposure to PFOA and PFOS over certain levels may result in adverse health effects.

The Lahontan Water Board is charged with the protection of the beneficial uses of water in the Lahontan Region, including water used or that could potentially be used as drinking water. If materials suspected of containing PFAS were/are used, released, or disposed of at the Barstow Class III Landfill, then it is likely PFAS will be detected in the Facility's leachate, gas condensate, and groundwater monitoring networks. This Order requires the Discharger to perform a one-time sampling and reporting of PFAS concentrations as specified in MRP No. R6V-2022-TENTATIVE.

22. Hazardous Waste Management

Solid waste is screened for household, commercial, and industrial hazardous waste. The Discharger implements measures to prevent the acceptance and disposal of hazardous wastes at the Landfill. Wastes received at the Facility are visually inspected to ensure that potentially hazardous materials are identified and removed from the waste stream. The visual inspection occurs at the gatehouse and at the active face. All hazardous waste identified from the visual inspections are placed in portable hazardous waste containers and move temporarily to the permitted hazardous waste storage locker for off-site disposal at an appropriate facility. The Facility has an active diversion program for inert materials, treated wood, cathode ray tubes, used automotive oil, drained used oil filters, and appliances. These items are collected and stockpiled in designated areas until a sufficient quantity has been accumulated for economic recycling offsite.

23. Site Storm Water Management

All storm water runoff from the Facility is regulated under the State Water Board's Water Quality Order No. 2014-0057-DWQ, *National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit), WDRs for Discharges of Stormwater Associated with Industrial Activities Excluding Construction Activities*, or subsequent permits. The Discharger has developed and is implementing a site-specific Storm Water Pollution Prevention Plan (SWPPP), dated October 2018, for the Facility. Storm water protection at the Facility is primarily accomplished through drainage control based on the following objectives:

protection from run-on; minimize infiltration of precipitation into the waste; minimize exposure of pollutants to precipitation; manage run-off to minimize erosion and sedimentation; and minimize offsite migration of storm water. To achieve these objectives, the Discharger implements structural and non-structural Best Management Practices (BMPs), as described in the SWPPP, to mitigate potential pollution of storm water discharges, and performs site compliance inspections to evaluate the effectiveness of the BMPs.

24. Statistical and Non-Statistical Methods

Statistical and non-statistical analyses of monitoring data are necessary for the earliest possible detection of measurably significant evidence of a release of waste from the WMUs. CCR, title 27, section 20415, subdivision (e)(7), requires statistical data analyses to determine when there is "measurably significant" evidence of a release from the WMU. CCR, title 27, section 20415, subdivision (e)(8) allows non-statistical data analysis methods that can achieve the goal of the monitoring program at least as well as the most appropriate statistical method. The monitoring parameters listed in MRP No. R6V-2022-TENTATIVE are used as indicators of a release from the Facility.

25. Water Quality Protection Standard

The WQPS consists of constituents of concern (COCs), concentrations limits, monitoring points, and the point of compliance. The COCs, monitoring points, and point of compliance for groundwater and unsaturated zone monitoring are described in MRP No. R6V-2022-TENTATIVE, which is made part of this Order. The WQPS applies over the active life of the Landfill and Surface Impoundments, closure and post-closure maintenance period, and the compliance period of the Facility in accordance with CCR, title 27, section 20410(a).

26. Compliance Period

For MSW landfills, the compliance period is the number of years equal to the active life of the WMU plus a minimum of 30 years during the post-closure period in accordance with 40 CFR, Part 258.61. The compliance period is the minimum period during which the Discharger must conduct a water quality monitoring program subsequent to a release from the Landfill. The compliance period must begin anew each time the Discharger initiates an evaluation monitoring program (EMP).

27. Detection Monitoring Program

Pursuant to CCR, title 27, section 20420, the Discharger has proposed a detection monitoring program (DMP) for the Facility. The DMP monitors groundwater and the unsaturated zone for evidence of waste constituent migration that may threaten groundwater quality. The DMP is specified in MRP No. R6V-2022-TENTATIVE.

28. Evaluation Monitoring Program

An EMP may be required, pursuant to CCR, title 27, section 20385 and section 20420, subdivision (k)(5-6), whenever there is “measurably significant” evidence of a release during a DMP or whenever there is significant physical evidence of a release. The Discharger must delineate the nature and extent of the release and develop a suite of proposed corrective action measures within 90 days of initiating an EMP, unless the Discharger proposes and substantiates a longer time period for implementing the EMP. If the EMP confirms measurably significant evidence and/or significant physical evidence of a release, then the Discharger must submit an Engineering Feasibility Study report proposing corrective action measures pursuant to CCR, title 27, section 20425 (k)(6), and MRP No. R6V-2022-TENTATIVE.

29. Corrective Action Program

A corrective action program (CAP) to remediate releases from the Facility may be required pursuant to CCR, title 27, section 20430 if results of an EMP confirm measurably significant evidence of a release or significant physical evidence of a release from the Facility.

30. Unsaturated Zone Monitoring

Unsaturated zone monitoring as part of the DMP for the Landfill began in 1987. Four lysimeters were installed; two lysimeters have since been removed to accommodate installation of the Surface Impoundments, and the remaining two lysimeters have not yielded soil pore water samples to date.

In 1995, the Discharger installed three soil-pore gas monitoring wells, which were monitored quarterly through 2008, then semiannually from 2009 to present. Methane and VOCs are commonly detected in soil-gas samples collected from these wells. The measured concentrations of soil-pore gas are variable between monitoring events, and there is no indication of increasing concentration trends. Detected VOCs include 1,1-dichloroethane, 1,1-dichloroethylene, 1,1,1-trichloroethane, chloroform, methylene chloride, xylene, toluene, trichlorofluoromethane, tetrachloroethene, and trichloroethene. To date, VOCs have not been detected in groundwater beneath the site.

31. Discharge of Monitoring Well Purge Water

As part of the regularly scheduled groundwater sampling events, groundwater monitoring wells are purged until parameters of electrical conductivity, pH, and temperature are sufficiently stabilized to ensure collection of a representative sample. Purged groundwater is currently discharged to the ground on-site and allowed to evaporate. To protect surface waters and groundwater, the discharge to the ground of purge water is prohibited from containing concentrations of COCs

and monitoring parameters that exceed the WQPS, as described in MRP No. R6V-2022-TENTATIVE.

32. Preliminary Closure and Post-Closure Maintenance Plan for the Landfill

The Discharger has submitted a Preliminary Closure and Post-Closure Maintenance Plan (PCPCMP), as required by CCR, title 27, section 21769(b). A Final Closure and Post-Closure Maintenance Plan must be submitted for acceptance two years prior to the anticipated closure date for the entire Landfill or any portion thereof. The PCPCMP proposes in-place closure of the Landfill and an extended period of site monitoring. The monitoring media will include the unsaturated zone, groundwater, and final cover materials.

33. Engineered Alternative to Prescriptive Standard for the Landfill Final Cover

The Discharger proposes a monolithic soil final cover over the entire Landfill, an engineered alternative final cover to prescriptive standards. Federal regulations 40 CFR, Part 258.60 and CCR, title 27, section 20080(b) allows for engineered alternatives to prescriptive standards. The Discharger submitted an Alternative Final Cover Determination and Final Cover Construction Quality Assurance Plan for the Barstow Class III Landfill, dated January 2007. CCR, title 27, section 20080, subdivision (b), requires that alternatives shall only be approved where the Discharger demonstrates that: (1) the construction of prescriptive standard is not feasible because it unreasonably and unnecessarily burdensome and will cost substantially more than alternatives, which meet the criteria, or is impractical and will not promote attainment of applicable performance standards; and (2) there is a specific engineered alternative that is consistent with the performance goal of the prescriptive standard and affords equivalent protection against water quality impairment. The alternative monolithic soil final cover consists of, from bottom to top, an interim/existing cover; a minimum 1-foot thick interim/foundation layer, and a 2-foot thick layer of select soil material that will comprise the erosion-resistant vegetative. The engineered alternative final cover system was approved with the adoption of Board Order No. R6V-2012-0037.

34. Closure of Class II Surface Impoundments and Landfarm

The Discharger has submitted a PCPCMP for the Surface Impoundments and Landfarm, as required by CCR, title 27, section 21769(b). The PCPCMP proposes clean closure of the surface impoundments in accordance with CCR, title 27, section 21400(b)(1), and clean closure of the Landfarm, as described below.

Clean closure of the surface impoundments will include the removal of all residual wastes, including sludges, precipitants, settled solids, and liner materials contaminated by wastes. Liner materials will be disposed of at an appropriate WMU. Any natural geologic materials beneath or adjacent to the closed surface impoundments that have been contaminated will be removed and disposed of

accordingly. Clean closure of the Landfarm will include excavation and disposal of treatment zone soil, verification soil sampling, backfilling, and grading.

35. Financial Assurances

The Discharger has provided documentation that a financial assurance fund has been established for closure, post-closure maintenance, and potential future corrective action requirements. This Order requires the Discharger to report the amount of money available in the fund as part of the annual self-monitoring report. This Order also requires the Discharger to demonstrate, in an annual report, that the amount of financial assurance is adequate or to increase the amount of financial assurance, as appropriate, for inflation.

36. Basin Plan

The Water Board adopted a *Water Quality Control Plan for the Lahontan Region* (Basin Plan) that became effective on March 31, 1995. This Order implements the Basin Plan, as amended.

37. Receiving Waters

The receiving waters are the groundwaters of the Lower Mojave River Valley Groundwater Basin (Department of Water Resources, Groundwater Basin No. 6-40; Basin Plan, Plate 2B) and minor surface waters of the Lower Mojave Hydrologic Area (628.50) of the Mojave Hydrologic Unit (628.00; Basin Plan, Plate 1B).

38. Beneficial Uses

The present and probable beneficial uses of the groundwaters of the Lower Mojave River Valley Groundwater Basin No. 6-40, as set forth and defined in the Basin Plan are:

- a. Municipal and Domestic Supply (MUN);
- b. Agricultural Supply (AGR);
- c. Industrial Service Supply (IND);
- d. Freshwater Replenishment (FRSH); and
- e. Aquaculture (AQUA).

The present and probable beneficial uses of minor surface waters of the Lower Mojave Hydrologic Area No. 628.50, as set forth and defined in the Basin Plan are:

- a. Municipal and Domestic Supply (MUN);
- b. Agricultural supply (AGR);
- c. Ground Water Recharge (GWR);
- d. Water Contact Recreation (REC-1);

- e. Non-contact Water Recreation (REC-2);
- f. Commercial and Sportfishing (COMM);
- g. Warm Freshwater Habitat (WARM); and
- h. Wildlife Habitat (WILD).

39. Waste Management Strategy

The Water Board has determined that the proposed waste discharges to the Landfill, Surface Impoundments, and Landfarm are consistent with a waste management strategy that prevents the pollution or contamination of the water of the state, during the active life and after closure of the WMUs.

40. California Climate Change Mitigation Strategy

The Water Board adopted Resolution No. R6T-2019-0277 that addresses the impacts of climate change. The Board Order is consistent with the four protection strategies as stated below:

- a. Protection of Wetlands, Floodplains and Headwaters - *Support external efforts and initiate necessary regulatory actions to facilitate improved meadow, wetland, and floodplain conditions and stream flows in headwater areas to achieve greater levels of watershed resiliency.*

This Board Order has no effect on wetlands, floodplains, and headwaters protection.

- b. Infrastructure Protection - *Support external efforts and initiate necessary regulatory actions to help build and maintain sustainably functioning infrastructure so built systems remain safe and reliable during extreme weather events including heat waves, extreme precipitation, severe droughts, and wildfires.*

Infrastructure associated with this Facility is accessible for repairs or is well protected beneath the ground surface and likely will not be affected during extreme weather events.

- c. Protection of Groundwater Quality and Supply - *Support external efforts and initiate necessary regulatory actions to protect groundwater quality and improve groundwater recharge for purposes of protecting source water and building sustainability and drought resiliency.*

This Board Order requires the construction, maintenance, and proper operation of WMUs, to ensure waste containment; and a detection groundwater monitoring program to monitor and detect groundwater degradation and/or pollution, providing the best assurance for an early detection of any releases from the Facility.

- d. Protection of Headwater Forests and Promoting Fire Resiliency - Support external efforts and initiate necessary regulatory actions to facilitate the pace and scale of projects implemented to build long-term resilience of headwater forests including those that (1) reduce vulnerability to catastrophic fires and pest infestations, and (2) support resilience in recovery efforts.

This Board Order has no effect on protecting headwater forests or promoting fire resiliency.

41. California Water Code, Section 13241 Considerations

Pursuant to the California Water Code (CWC), section 13241, the requirements of this Order take into consideration:

- a. Past, present, and probable future beneficial uses of water. This Order identifies existing groundwater quality and past, present, and probable future beneficial uses of water, as described in Finding Nos. 11 and 38, respectively. The proposed discharge will not adversely affect present or probable future beneficial uses of water including municipal and domestic supply, agricultural supply, industrial service supply, and freshwater replenishment, because there has been no indication of a release from the unlined Landfill, the current discharge is authorized only to lined WMUs, and monitoring is required to assess water quality.
- b. Environmental characteristics of the hydrographic unit under consideration including the quality of water available thereto. Finding No. 11 describes the environmental characteristics and quality of water available.
- c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area. Compliance with the requirements of this Order will protect groundwater quality. The Water Board will use its existing authority and these WDRs to ensure protection of water quality from these discharges.
- d. Economic considerations. Water Quality Objectives established in the Basin Plan for the Lower Mojave River Valley Groundwater Basin do not subject the Discharger to economic disadvantage as compared to other similar discharges in the Region. This Order will require the Discharger to submit proposals compliant with the requirements of CCR, title 27, and is reasonable.
- e. The need for developing housing within the region. The Discharger is not responsible for developing housing within the region.
- f. The need to develop and use recycled water. The Discharger does not propose the use of recycled water at this Facility, as there is no locally available source.

42. Human Right to Safe, Clean, Affordable, and Accessible Water

Water Code section 106.3 establishes a state policy that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes and directs state agencies to consider this policy when adopting regulations pertinent to those uses of water. This Order promotes that policy by requiring storm water and drainage controls, monitoring to assess water quality, and corrective action to address impacts to water quality.

43. California Environmental Quality Act

On October 20, 2009, the County, as the CEQA Lead Agency, certified the Final Environmental Impact Report (EIR) for the Barstow Sanitary Landfill Expansion Project, which addressed all phases of the Facility expansion, pursuant to provisions of the California Environmental Quality Act. The County certified the EIR with a Statement of Overriding Considerations for the Project, with regard to impacts to the following: 1) Aesthetics; 2) Air Quality; and, 3) Global Climate Change.

As described in the EIR, the Project would include expanding, both vertically and horizontally, into lined waste management units, the waste footprint of the existing solid waste Landfill located south of the City of Barstow. Expansion would occur in phases, which would encompass 284 additional acres and increase the site life of the Landfill an additional 63 years, or projected closure in 2073. As portions of the site reach their final configuration, a final cover layer may be constructed in phases. The post-closure end use for the Barstow Landfill would be undeveloped open space.

The Water Board, acting as a CEQA Responsible Agency in compliance with CCR, title 14, section 15096, subdivision (g)(2), evaluated the potentially significant impacts to water quality identified in the EIR.

The Water Board's CEQA findings are as follows:

The Project could cause significant impacts to groundwater and surface water quality. The Water Board has reviewed the EIR and finds the mitigation measures listed below, and the monitoring of the effectiveness of the mitigation measures, as specified in this Order, are adequate to reduce water quality impacts related to the discharge of waste to less than significant. These mitigation measures have been made requirements of this Order.

- a. To construct a lined waste containment system that is designed to meet or exceed the minimum State and Federal requirements and performance standards in place at the time of cell design.

- b. Implement adequate and appropriate mitigation as required by the State Water Board General Construction and Industrial Storm Water Orders, and develop a storm water pollution prevention plan.
- c. To construct and design the lined expansion containment structure that would limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under a 100-year, 24-hour precipitation event.
- d. To design, construct, and maintain diversion and drainage structures for the lined Landfill that would accommodate storm water runoff; effectively divert storm water run-on; and prevent storm water erosion and downstream impacts due to storm water diversion.

44. Antidegradation Analysis

State Water Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintenance of High Quality Waters in California") requires that whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality must be maintained. Any change in the existing high quality is allowed by that policy only if it has been demonstrated to the Regional Water Board that any change will be consistent with maximum benefit to the people of the state, will not unreasonably affect present and anticipated beneficial use of such water, and will not result in water quality less than that prescribed in the policies. The policy further requires that Dischargers meet the WDR which will result in the best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and that the highest water quality consistent with maximum benefit to the people of the state will be maintained.

Adequate liner systems, which comply with CCR, title 27 requirements, are needed to prevent an unauthorized release to groundwater and this WDR is expected to prevent degradation of water quality as a result of waste discharges. A monitoring and maintenance program is required to ensure that waste discharges are contained within the WMUs at the Facility. As a result, degradation is not expected.

45. Technical and Monitoring Reports

CWC, 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 must furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, must bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports.”

Technical reports are necessary to assure compliance with this Order and to assess any water quality impacts due to discharges from the Facility. Therefore, the burden, including costs, of these reports bears a reasonable relationship to the need for the report and the benefits to be obtained from the reports.

46. Right to Petition

Any person aggrieved by this action of the Water Board may petition the State Water Board to review the action in accordance with CWC, section 13320, and CCR, title 23, sections 2050 et. seq. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the internet at http://www.waterboards.ca.gov/public_notices/petitions/water_quality, or will be provided in hard copy or electronic format upon request.

47. Notification of Interested Parties

The Water Board notified the Discharger and interested agencies and persons of its intent to adopt revised WDRs for the authorized discharge of waste to the WMUs and has provided the public with an opportunity to submit written comments.

48. Consideration of Interested Parties

The Water Board, in a public meeting held on [DATE], heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED, pursuant to CWC, sections 13263 and 13267, that the Discharger must comply with the following:

I. RECEIVING WATER LIMITATIONS

- A. The discharger must not cause the presence of the following substances or conditions in groundwaters of the Lower Mojave River Valley Groundwater Basin.
1. Bacteria – Groundwaters designated as MUN, the median concentration of coliform organisms, over any seven-day period, must be less than 1.1 Most Probable Number per 100 milliliters (MPN/100 mL).
 2. Chemical Constituents – Groundwaters designated as MUN must not contain concentrations of chemical constituents in excess of the Primary MCL or Secondary MCL based upon drinking water standards specified in the following provisions of CCR, title 22: Table 64431-A of section 64431 (Inorganic Chemicals), Table 64444-A of section 64444 (Organic Chemicals), Table 64449-A of section 64449 (Secondary MCLs – Consumer Acceptance Contaminant Levels), and Table 64449-B of section 64449 (Secondary MCLs – Consumer Acceptance Contaminant Level Ranges). This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect. Groundwaters must not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.
 3. Radioactivity – Radionuclides must not be present in concentrations that are deleterious to human, plant, animal, or aquatic life, or that result in the accumulation of radionuclides in the food chain to an extent that it presents a hazard to human, plant, animal, or aquatic life. Groundwater designated MUN must not contain concentrations of radionuclides in excess of limits specified in CCR, title 22, section 64442, Table 64442, and section 64443, Table 64443, including future changes as the changes take effect.
 4. Taste and Odors – Groundwaters must not contain taste or odor-producing substances in concentrations that cause a nuisance or that adversely affect beneficial uses. For groundwaters designated as MUN, at a minimum, concentrations must not exceed adopted Secondary MCLs as specified in CCR, title 22, section 64449, Table 64449-A (Secondary MCLs – Consumer Acceptance Contaminant Level) and Table 64449-B (Secondary MCLs – Consumer

Acceptance Contaminant Levels Ranges) including future changes as the changes take effect.

5. Toxic Substances – Any presence of toxic substances in concentrations that individually, collectively, or cumulatively cause a detrimental physiological response in humans, plants, animals, or aquatic life is prohibited.
- B. The discharger must not cause the presence of the following substances or conditions in surface waters of the Lower Mojave Hydrologic Area.
1. Ammonia – The neutral, un-ionized ammonia species (NH_3) is highly toxic to freshwater fish. The fraction of toxic NH_3 to total ammonia species ($\text{NH}_4^+ + \text{NH}_3$) is a function of temperature and pH. Tables 3-1 to 3-4 from the Basin Plan were derived from USEPA ammonia criteria for freshwater. Ammonia concentrations must not exceed the values listed for the corresponding conditions in these tables. For temperature and pH values not explicitly in these tables, the most conservative value neighboring the actual value may be used or criteria can be calculated from numerical formulas available on page 3-4 of the Basin Plan.
 2. Bacteria – Waters must not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes. The fecal coliform concentration during any 30-day period must not exceed a log mean of 20/100 mL, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 mL. The USEPA recommends that the log mean should ideally be based on a minimum of not less than five samples collected as evenly spaced as practicable during any 30-day period. However, a log mean concentration exceeding 20/100 mL for any 30-day period shall indicate violation of this objective even if fewer than five samples were collected.
 3. Biostimulatory Substances – Waters must not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect the water for beneficial uses.
 4. Chemical Constituents – Waters designated as MUN must not contain concentrations of chemical constituents in excess of the MCL or secondary MCL based upon drinking water standards specified in CCR, title 22, chapter 15, article 1, section 64400 et. seq. Waters designated as AGR must not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes). Waters must not contain

concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses.

5. Chlorine, Total Residual – For the protection of aquatic life, total chlorine residual must not exceed either a median value of 0.002 mg/L or a maximum value of 0.003 mg/L. Median values must be based on daily measurements taken within any six-month period.
6. Color – Waters must be free of coloration that causes nuisance or adversely affects the water for beneficial uses.
7. Dissolved Oxygen – The dissolved oxygen concentration, as percent saturation, must not be depressed by more than 10 percent, nor shall the minimum dissolved oxygen concentration be less than 80 percent of saturation. The minimum dissolved oxygen concentration must not be less than 4.0 mg/L as a daily minimum, 5.0 mg/L as a 7-day mean, and 6.5 mg/L as a 30-day mean.
8. Floating Materials – Waters must not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses. For natural high-quality waters, the concentrations of floating material must not be altered to the extent that such alterations are discernible at the 10 percent significance level.
9. Oil and Grease – Waters must not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect the water for beneficial uses. For natural high-quality waters, the concentration of oils, greases, or other film or coat generating substances must not be altered.
10. Nondegradation of Aquatic Communities and Populations – All waters must be free from substances attributable to wastewater or other discharges that produce adverse physiological responses in humans, animals, or plants; or which lead to the presence of undesirable or nuisance aquatic life. All waters must be free from activities that would substantially impair the biological community as it naturally occurs due to physical, chemical and hydrologic processes.
11. pH – Changes in normal ambient pH levels must not exceed 0.5 pH units. The pH must not be depressed below 6.5 nor raised above 8.5. Compliance with the pH objective for these waters will be determined on a case-by-case basis.

12. Radioactivity – Radionuclides must not be present in concentrations which are deleterious to human, plant, animal, or aquatic life nor which result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life. Waters designated as MUN must not contain concentrations of radionuclides in excess of the limits specified in CCR, title 22.
13. Sediment – The suspended sediment load and suspended sediment discharge rate of surface waters must not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses.
14. Settleable Materials – Waters must not contain substances in concentrations that result in deposition of material that causes nuisance or that adversely affects the water for beneficial uses. For natural high-quality waters, the concentration of settleable materials must not be raised by more than 0.1 milliliter per liter.
15. Suspended Materials – Waters must not contain suspended materials in concentrations that cause nuisance or that adversely affect the water for beneficial uses. For natural high-quality waters, the concentration of total suspended materials must not be altered to the extent that such alterations are discernible at the 10 percent significance level.
16. Taste and Odor – Waters must not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish or other edible products of aquatic origin, that cause nuisance, or that adversely affect the water for beneficial uses. For naturally high-quality waters, the taste and odor must not be altered.
17. Temperature – The natural receiving water temperature of all waters must not be altered unless it can be demonstrated to the satisfaction of the Water Board that such an alteration in temperature does not adversely affect the water for beneficial uses. For waters designated WARM, water temperature must not be altered by more than five degrees Fahrenheit (5° F) above or below the natural temperature. For waters designated COLD, the temperature must not be altered.
18. Toxicity – All waters must be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth

anomalies, bioassays of appropriate duration and/or other appropriate methods as specified by the Water Board (or the Executive Officer or his/her designee). The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, must not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary, for other control water that is consistent with the requirements for "experimental water" as defined in *Standard Methods for the Examination of Water and Wastewater* (American Public Health Association, et al. 1998).

19. Turbidity – Waters must be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity must not exceed natural levels by more than 10 percent.

II. REQUIREMENTS AND PROHIBITIONS

A. General

1. The discharge must not cause or threaten to cause a condition of pollution or nuisance as defined in CWC, section 13050.
2. The discharge of waste, as defined in CWC, section 13050, subdivision (d), must not cause an exceedance of any Water Quality Objective (WQO) contained in the Basin Plan.
3. Where any numeric or narrative WQO contained in the Basin Plan is already being exceeded, any discharge which causes further degradation or pollution is prohibited.
4. The discharge of pesticides to surface waters or groundwater is prohibited.
5. The discharge of waste, except to the authorized disposal sites, is prohibited.
6. Water used for dust control must be limited to a minimal amount. A "minimal amount" is defined as that amount which will not result in run-off.
7. The discharge of solid or liquid waste, leachate, or any other deleterious material to surface waters or groundwater is prohibited, except for the discharge of purge water to the ground.

8. The Discharger must maintain in good working order any control system or monitoring device installed to achieve compliance with these WDRs.
9. The WMUs must be protected from inundation, washout, or erosion of wastes and erosion of covering materials resulting from a 24-hour, 100-year storm or a flood having a 100-year return period. The surface impoundments must be adequately protected against overflow (must maintain a 2-foot freeboard), washout, inundation, structural damage, or a significant reduction in efficiency resulting from a storm or flood having a reoccurrence interval of once in 1,000 years.
10. The exterior surfaces of the disposal sites must be graded to promote lateral run-off of precipitation and to prevent ponding. Ponding of any liquid on the Landfill is prohibited.
11. The Discharger must notify the Water Board within one business day of any flooding, slope failure or other change in site conditions that could impair the integrity of a WMU or of precipitation and drainage control structures. The Discharger must correct any failure that threatens the integrity of the WMU, after approval of the method, in accordance with a schedule established by the Water Board as specified in CCR, title 27, section 21710, subdivision (c)(2).
12. The Discharger must at all times maintain adequate and viable financial assurances acceptable to the Water Board Executive Officer for costs associated with closure, post-closure maintenance and monitoring, and for corrective action for all known or reasonably foreseeable releases for all WMUs.

B. Landfill

1. The discharge of waste that contains liquid in excess of the moisture-holding capacity of the Landfill, or which contains liquid in excess of the moisture-holding capacity as a result of waste management operations, compaction, or settlement, is prohibited.
2. Sludge treated at the Landfarm and transported to the Landfill for disposal must not contain COCs at concentrations that are hazardous or designated waste.
3. Prior to Landfill disposal, all sludge treated at the Landfarm must be characterized in accordance with the Septage Management Plan accepted by the Water Board.

4. Sludge transported to the Landfill for disposal must be greater than or equal to 50 percent solids by weight.
5. Except as otherwise specified in this Order, no hazardous or designated wastes can be discharged to or used as ADC at the Landfill as defined in CCR, title 23, chapter 15, section 2521 and CCR, title 27, section 20210, respectively.
6. The Discharger must remove and relocate any waste which is or has been discharged at the Landfill in violation of these requirements. The waste must be relocated to a site which is permitted to receive such wastes. All removal and relocation projects must be coordinated with regulatory agencies, including but not limited to the County of San Bernardino Division of Environmental Health Services.
7. Surface drainage from offsite areas and internal site drainage from surface or subsurface sources, must not contact or percolate through solid wastes discharged at the Landfill.
8. During periods of precipitation, the Landfill disposal activity must be confined to the smallest area possible based on the anticipated quantity of wastes.
9. Storm water contacting wastes used as ADC or intermediate cover must be handled and disposed of as leachate, except as allowed under Requirements and Prohibitions, Section II.B.1, of this Order.
10. Leachate may be recirculated back into or utilized for dust control over the lined units of the Landfill from which it was generated, consistent with CCR, title 27, section 20340, subdivision (g). Leachate used for dust control on lined portions of the Landfill must not contain constituents in concentrations that exhibit characteristics of toxicity.
11. Water used for dust control on the unlined Landfill must not contain concentrations of VOCs in excess of the WQPS.
12. All purge water discharged to the ground at the Landfill is prohibited from containing concentrations of COCs and monitoring parameters that exceed the WQPS. Purge water containing concentrations of COCs and monitoring parameters in excess of the WQPS can be used in the lined Landfill only, for dust control or similar uses that do not result in ponding.

13. For each type of waste proposed as ADC, the Discharger must first demonstrate that it does not pose a threat to water quality and meets the requirements under CCR, title 27, section 20705. ADC previously approved by the local enforcement agency includes green waste material, shredded tires, solidified waste with an approved extender, processed construction and demolition material, and/or a geo-synthetic blanket.
14. Compost may be used as a soil amendment over the intermediate cover to promote vegetative growth, if applied at agronomic rates and there is no threat to water quality from storm water runoff.
15. Pursuant to CCR, title 27, section 20200(a)(1), TASW, contaminated soil, ash, and cement kiln dust that has been confirmed by testing not to be a hazardous waste can be discharged to the lined portions of the Landfill or used as ADC over portions of the operating face that are underlain by a composite liner, so long as any stockpiled ADC is protected from producing runoff, in the event of rain.
16. The discharge of TASW at the Facility is prohibited if DTSC makes a determination that this material requires management at a Class I facility or if the Discharger fails to obtain a nonhazardous waste classification from DTSC for TASW. The discharge of TASW to the unlined Landfill is prohibited.
17. The Discharger must not discharge TASW with concentrations of hazardous constituents that equal or exceed the limits listed in Attachment C, by the extract of the waste or treatment residual developed using the method according to the Waste Extraction Test (WET) described in CCR, title 22, section 66261.126, Appendix II.

Prior to discharge of TASW to the lined Landfill, the Discharger must provide verification that the TASW was sampled in accordance with a Water Board accepted Sampling and Analysis Plan and that the TASW does not exceed the discharge limits established in this Order.
18. The Discharger must not discharge polychlorinated biphenyls (PCBs) in concentration (mg/L) of waste extract that equals or exceeds its listed soluble threshold limit concentration (STLC) or at a concentration in milligram per kilogram (mg/kg) in the waste that equals or exceeds its listed total threshold limit concentration (TTLC) listed in Attachment C.

C. Landfill Construction Requirements

1. The Discharger proposes to construct the Phase 1B expansion and future phases with an accepted engineered alternative composite liner system and LCRS, as described in Finding 15. The Discharger must construct the liner system and LCRS, as described in Finding 15 and in accordance with the construction details contained in the Design Plan and engineered drawings submitted to the Water Board for acceptance prior to development of each lined Landfill phase.
2. The Design Plan must contain a Construction Quality Assurance (CQA) Plan, as well as detailed engineered drawings and specifications for each major design element, including, at a minimum, the accepted elements of the liner system and LCRS as described in the JTD/ROWD dated March 2021 and any proposed revisions to the detection or corrective action monitoring programs, including plans and specifications for the installation of additional groundwater point of compliance and/or unsaturated zone monitoring points, and an updated WQPS. The Design Plan must be submitted a minimum of **120 day prior to the construction** of a new lined Landfill unit, and must be prepared, signed, and sealed by a California-registered Civil Engineer or Certified Engineering Geologist. CQA Plans must conform to all of the requirements specified in CCR, title 27, section 20324.
3. The Discharger must adhere to the accepted engineering Design Plan prepared pursuant to CCR, title 27, section 21760, including specifications, and technical reports submitted and the JTD/ROWD and all requirements contained within this Order.

D. Landfarm

1. Only sludge generated from the Surface Impoundments may be treated in the Landfarm.
2. Sludge transported to the Landfarm for treatment must be greater than or equal to 50 percent solids by weight.
3. No hazardous waste, as defined in CCR, title 22, section 66261.3, and managed as required in CCR, title 23, section 2521, must be accepted at the Landfarm for treatment.
4. Sludge must not be accepted at the Landfarm in excess of the volume that can be treated at any one time.

5. Sludge removed from the Landfarm must be disposed in the lined Landfill or taken to an off-site disposal site that is permitted to receive such waste.
6. The septage sludge drying area must be operated and maintained as a Class II Land Treatment Unit until clean closed.
7. The Landfarm must be operated to maximize the degradation, transformation, and immobilization of waste constituents in the treatment zone, in accordance with CCR, title 27, section 20377.
8. Storm water contacting wastes in the Landfarm must be handled and disposed of as leachate.

E. Surface Impoundments

1. No chemical toilet waste containing non-biodegradable toxic substances, defined by CCR, title 22, sections 67410.1 through 67410.7, must be discharged to the Surface Impoundments.
2. No hazardous waste, as defined in CCR, title 23, chapter 15, section 2521, must be discharged to the Surface Impoundments.
3. Wastes discharged to the Surface Impoundments must be load checked and sampled in accordance with an accepted Sampling and Analysis Plan.
4. The discharge of industrial wastes to the Surface Impoundments is prohibited.
5. The Surface Impoundments must maintain a minimum two-foot freeboard at all times.
6. There must be no discharge of waste from the Surface Impoundments to the adjacent land areas, except where authorized by this Board Order.
7. Direct pipeline discharge to the Surface Impoundments must be either equipped with devices, or must have fail-safe operating procedures, to prevent overfilling. Discharges must be stopped immediately in the event of any containment system failure and the system repaired.

F. Electronic Submittal of Information

Pursuant to CCR, title 23, section 3890, the Discharger must submit all reports, including soil, soil vapor, and water data, prepared for the purpose

of subsurface investigation or remediation of a discharge of waste to land subject to CCR, title 27, Division 2, electronically over the internet to the State Water Board's GeoTracker system. This requirement is in addition to, and not superseded by, any other applicable reporting requirement.

III. WATER QUALITY MONITORING AND RESPONSE PROGRAMS

A. Detection Monitoring Program

The Discharger must maintain a DMP as required in CCR, title 27, section 20420.

B. Evaluation Monitoring Program

The Discharger must establish an EMP whenever there is measurably significant evidence or significant physical evidence of a release from a WMU pursuant to CCR, title 27, section 20425. Within 90 days of initiating an EMP, the Discharger must delineate the nature and extent of the release, as well as develop, propose, and support corrective action measures to be implemented in a CAP.

C. Corrective Action Program

The Discharger must implement a corrective action program as specified in CCR, title 27, section 20385(a)(4) and 20430(c), following completion of an EMP.

D. Water Quality Protection Standard

1. The WQPS consists of COCs, concentration limits, monitoring points, and the point of compliance. The COCs, concentration limits, monitoring points, and point of compliance for groundwater and unsaturated zone monitoring are described in MRP No. R6V-2022-TENTATIVE.
2. The Discharger must propose to the Water Board any new constituents of concern proposed for discharge to the Facility at least 180 days before discharge. Before a new discharge commences, the Discharger must estimate the concentrations for such constituents within the waste stream and submit written statistical method(s) in order to detect a release of such constituents.
3. At any given time, the concentration limit for each COC must be equal to the background data set of that constituent unless a concentration limit greater than background has been established.

The background data set for each monitoring point/constituent pair should be comprised of at least eight data points, collected quarterly.

4. If the Discharger or Water Board Executive Officer determines that concentration limits were or are exceeded, the Discharger must immediately institute verification procedures upon such determination as specified in Section III. F of this Order or, within 90 days of such determination, submit a technical report pursuant CWC, section 13267, subdivision (b), proposing an EMP meeting the provisions of CCR, title 27. Within 90 days of the Water Board authorizing the EMP, the Discharger must complete the delineation, develop a suite of proposed corrective action measures, and submit a revised ROWD with a proposed CAP for adoption by the Water Board.
5. Monitoring of the groundwater and unsaturated zone must be conducted to obtain background data and to provide the best assurance of the early detection of any new releases from the WMUs.

E. Data Analysis

Within 45 days after completion of sampling, the Discharger must determine at each Monitoring Point whether there is measurably significant evidence and/or significant physical evidence of a release from the Facility. The analysis must consider all monitoring parameters and COCs. The Executive Officer may also make an independent finding that there is measurably significant evidence and/or significant physical evidence of a release.

1. To determine whether there is "measurably significant" (as defined in CCR, title 27, section 20164) evidence of a release from the Facility, the Discharger must use approved statistical data analysis methods to evaluate point of compliance groundwater data, as required by CCR, title 27, section 20415, subdivision (e).
2. To determine whether there is significant physical evidence of a release from the Facility, the Discharger must also use non-statistical methods. Significant physical evidence may include, but is not limited to, unexplained volumetric changes in the WMUs, unexplained stress in biological communities, unexplained changes in soil characteristics, visible signs of leachate migration, unexplained water table mounding beneath or adjacent to the WMUs, and/or any other change in the environment that could be reasonably be expected to be the result of a new release from the WMUs. Other non-statistical evidence of a release may include trends of increasing concentrations of one or more constituents over time.

3. If there is measurably significant evidence and/or significant physical evidence of a release, the Discharger must immediately notify the Water Board by telephone as to the monitoring points and constituent(s) or parameters involved followed by written notification sent certified mail within seven days (see "Unscheduled Reports to be Filed With the Water Board," MRP No. R6V-20121-TENTATIVE). The Discharger must initiate the verification procedures, as specified in this Order, Section III.F.

F. Verification Procedures

Whenever there is a determination by the Discharger or Executive Officer that there is measurably significant evidence or significant physical evidence of a release, the Discharger must initiate verification procedures as specified below.

1. The Discharger must either conduct a composite retest using data from the initial sampling event with all data obtained from the resampling event or must conduct a discrete retest in which only data obtained from the resampling event must be analyzed to verify evidence of a release. Alternatively, the Discharger may perform a pass 1-of-3 retesting approach using quarterly samples, as an engineered alternative.
2. The verification procedure need only be performed for the constituent(s) that has shown a measurably significant evidence of a release and must be performed for those monitoring points at which a release is indicated.
3. Within seven days of receiving the results of the last laboratory analyses for the retest, the Discharger must report to the Water Board, by certified mail, the results of the verification procedure, as well as all data collected for use in the retest.
4. If the Discharger or Executive Officer verifies that there is or was evidence of a release, the Discharger is required to submit a technical report to the Water Board within 90 days of such a determination, pursuant to CWC, section 13267, subdivision (b). The report must propose an EMP (see Section III.B above) or make a demonstration to the Water Board that there is a source other than the Facility that caused evidence of a release (see "Unscheduled Reports to be Filed With the Water Board," MRP No. R6V-2022-TENTATIVE).
5. If the Discharger declines to conduct verification procedures, the Discharger must submit a technical report, as specified in this Order, Section III.G.

G. Technical Report Without Verification Procedures

If the Discharger chooses not to initiate verification procedures after there has been a determination made for evidence of a release, a technical report must be submitted pursuant to CWC, section 13267(b). The report must propose an EMP or attempt to demonstrate that the release did not originate from the Facility.

H. Monitoring and Reporting

1. Pursuant to CWC, section 13267, subdivision (b), the Discharger must comply with the monitoring and reporting requirements as established in the attached MRP No. R6V-2022-TENTATIVE and as specified by the Executive Officer. The MRP may be modified by the Water Board Executive Officer.
2. The Discharger must comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of MRP No. R6V-2022-TENTATIVE.

IV. PROVISIONS

A. Rescission of Waste Discharge Requirements

Board Order No. R6V-2012-0037 and MRP No. R6V-2012-0037 are hereby rescinded.

B. Standard Provisions

The Discharger must comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994, in Attachment C, which is attached to and made part of this Order.

C. Closure and Post-Closure Maintenance Plan

The preliminary closure and post-closure maintenance plan must be updated if there is a substantial change in operations or costs for closure. The Discharger must submit a report to the Water Board on or before **April 30, 2022**, and by **April 30** every year thereafter, indicating that the preliminary closure and post-closure maintenance plan is in conformance with existing Facility operations. This report may be included in the annual monitoring report as required in MRP No. R6V-2022-TENTATIVE.

A final closure plan and revised ROWD must be submitted to the Water Board for review and acceptance **at least 180 days prior** to beginning any partial or final closure activities, or prior to discontinuing the use of the Facility for waste treatment, storage, or disposal pursuant to CCR, title 27,

section 21710(c)(5)(B). The final closure plan must be prepared by or under the supervision of either a California professional civil engineer or a California professional certified engineering geologist and be in compliance with CCR, title 27, sections 20950.

D. Financial Assurance

The Discharger must submit to the Water Board a financial assurance report on or before **April 30, 2022**, and by **April 30** every year thereafter, providing evidence that adequate financial assurances has been provided for closure, post-closure maintenance and for corrective action of all known and reasonably foreseeable releases. Evidence must include the total amount of money available in the fund developed by the Discharger. In addition, the Discharger must either provide evidence that the amount of financial assurance is still adequate or increase the amount of financial assurance by an appropriate amount. An increase may be necessary due to inflation, change(s) in regulatory requirements, change(s) in the approved closure plan, or other unforeseen events.

E. Modifications to the Facility

If the Discharger intends to expand the Facility or the capacity of the WMUs, a report must be filed with the Water Board **no later than 120 days prior** to the anticipated change, containing a detailed plan for Facility expansion. This plan must include but is not limited to, a time schedule for studies, design, and other information needed to document the proposed expansion of the Facility. Pursuant to CWC, section 13260(k), a report is required on the physical and chemical characteristics of the waste that could affect its potential to cause pollution or contamination, and a report is required to evaluate the potential of the discharge of the designated wastes or the release of hazardous substances.

V. TIME SCHEDULE

A. Final Design Plan

At least 120 days prior to the construction of any new or expanded WMU, the Discharger must submit design plans for the WMU in accordance with the requirements of CCR, title 27, section 21760, including accepted engineered alternatives with, but not limited to, design capacity, excavation, grading, liner system and LCRS, precipitation and drainage control, the unsaturated zone monitoring system, and the groundwater monitoring well locations. The Final Design Plan should include the CQA Plan, pursuant to CCR, title 27, sections 20323 and 20324. The Final Design Plan is to be accepted by the Executive Officer.

B. Final Construction Quality Assurance Report

No later than 180 days following the construction completion of a WMU, and **at least 60 days prior** to discharge onto the WMU, a Final CQA Report, required by CCR, title 27, section 20324, subdivision (d)(1)(C), must be submitted to the Water Board for review and acceptance. The report must be certified by a California professional civil engineer or a California professional engineering geologist. It must contain sufficient information and test results to verify specifications and with the accepted engineered alternative to the prescriptive standards and performance goals of CCR, title 27.

C. Monitoring Systems Installation Report

No later than 90 days following the construction completion of a monitoring system or monitoring system component, and **at least 60 days** prior to discharging to a new WMU, the Discharger must submit a technical report discussing the installation of the monitoring systems or monitoring system component for the WMU. The report must summarize all work activities associated with the installation of the groundwater and vadose zone monitoring systems. The report must be certified by a California professional civil engineer or a California professional geologist. It must contain sufficient information to verify that the construction was in accordance with State and/or County standards.

D. Water Quality Protection Standard

No later than 760 days following construction (8 quarters of monitoring, plus 30 days to generate the Water Quality Protection Standard), the Discharger must propose for acceptance by the Water Board a list of monitoring parameters and constituents of concern for each new monitoring point for which a WQPS has not been established, including a data analysis method, a revised WQPS, which includes concentration limits that define background water quality for all COCs and for each Point of Compliance. The report must be certified by a California professional civil engineer or a California professional geologist.

E. Financial Assurances

At least 60 days prior to discharge to a new WMU, and yearly thereafter, the Discharger must submit Instruments of Financial Assurance acceptable to the Water Board.

1. A Financial Assurance Instrument providing adequate funding for the closure activities, as described in the accepted preliminary closure and post-closure maintenance plan, must be submitted to the Water Board, pursuant to CCR, title 27, section 22207.

2. A Financial Assurance Instrument providing adequate funding for the post-closure monitoring and maintenance activities, as described in the accepted preliminary closure and post-closure maintenance plan, must be submitted to the Water Board, pursuant to CCR, title 27, section 22212.
3. A Financial Assurance Instrument providing adequate funding for corrective action of a known and reasonably foreseeable release must be submitted to the Water Board, pursuant to CCR, title 27, section 20080, subdivision (a)(1).

F. Sampling and Analysis Plan

No later than May 1, 2022, the Discharger must submit for Water Board review and acceptance a revised Sampling and Analysis Plan for the existing WMUs, including procedures for monitoring, sampling, and analysis of the Landfill (LCRS, leachate), Surface Impoundments (LCRS, waste discharge), Landfarm (soil), unsaturated zone (soil-gas and soil-moisture probes), and groundwater.

At least 60 days prior to the operation of a new WMU, the Discharger must submit a revised Sampling and Analysis Plan to be accepted by the Water Board, including procedures for monitoring, sampling, and analysis for the Landfill, Surface Impoundments, Landfarm, LCRS, unsaturated zone, and groundwater.

G. Monitoring Systems Installation Work Plan

No later than 60 days following the adoption of this Order or as part of the Design Plan for the construction of a new WMU, the Discharger must submit for Water Board review and acceptance a work plan for the installation of monitoring wells, establishing a groundwater monitoring network to adequately monitor the point of compliance downgradient of the WMUs. The work plan must propose the installation of an adequate number of monitoring wells to monitor groundwater downgradient of Phase 1B, and future phases, as they are constructed. The work plan must be certified by a California professional civil engineer or a California professional geologist.

H. PFAS Investigation

July 1, 2022, the Discharger must submit for Water Board review and acceptance a work plan for an initial sampling and analysis of PFAS in landfill leachate, gas condensate, septage pond wastewater, landfarm soil, and groundwater. The work plan must include a sampling and analysis plan specific to PFAS sampling. At a minimum, the work plan must provide the following:

1. PFAS Work Plan

- a. A map identifying the monitoring locations for collection of samples for PFAS analysis. Sampling locations must appropriately represent all conditions at your facility and must include landfill gas condensate, septage pond wastewater, landfarm soil, and groundwater.
- b. A Sampling and Analysis Plan that includes quality assurances and quality control procedures necessary to ensure valid and representative data is obtained and reported. Specify the appropriate sampling procedures, including sampling equipment, sampling containers, the quality of water used for blank preparation and equipment decontamination, sample hold times, and quantities for sampling PFAS compounds. To minimize cross-contamination, all sampling materials, equipment, blanks, containers, and equipment decontamination reagents must be PFAS-free, to the maximum extent practicable. Additional guidance for preventing sample contamination can be found at: https://www.waterboards.ca.gov/pfas/docs/sept_2020_pfas_sampling_guidelines.pdf.
- c. PFAS analytes and their respective reporting limits (MRP, Attachment D).
- d. The name of the selected laboratory for PFAS analysis in compliance with and capable of achieving the quality control/quality assurance requirements specified in Table B-15 of the Department of Defense (DoD) Quality Systems Manual (QSM), dated 2017, version 5.1 or newer.
- e. If the sampling locations are known to have or suspected to be constructed with materials containing PFAS compounds, include descriptions of the materials.
- f. Signature, stamp, and contact information for the California-licensed Professional Geologist or Professional Engineer acting in responsible charge for the content of the work plan.

2. PFAS Investigation Report

- a. Analytical results from the sampling event must be uploaded to GeoTracker's ESI portal within 30 days of receiving the laboratory analytical report. The analytical results must be

submitted in the Laboratory Electronic Deliverable Format™
(LAB EDF) EDD.

- b. A final sampling and analysis report, at minimum, must include the following information:
 - i. Description of the sampling activities and lab analytical method used, and any variation in sampling and analysis from what was provided in the accepted work plan;
 - ii. Written summary of the analytical results;
 - iii. Summary table of analytical results;
 - iv. Copies of Chains of Custody;
 - v. Copies of field sampling logs;
 - vi. Copy of the site map showing the sampling locations; and
 - vii. Copy of laboratory analytical results.

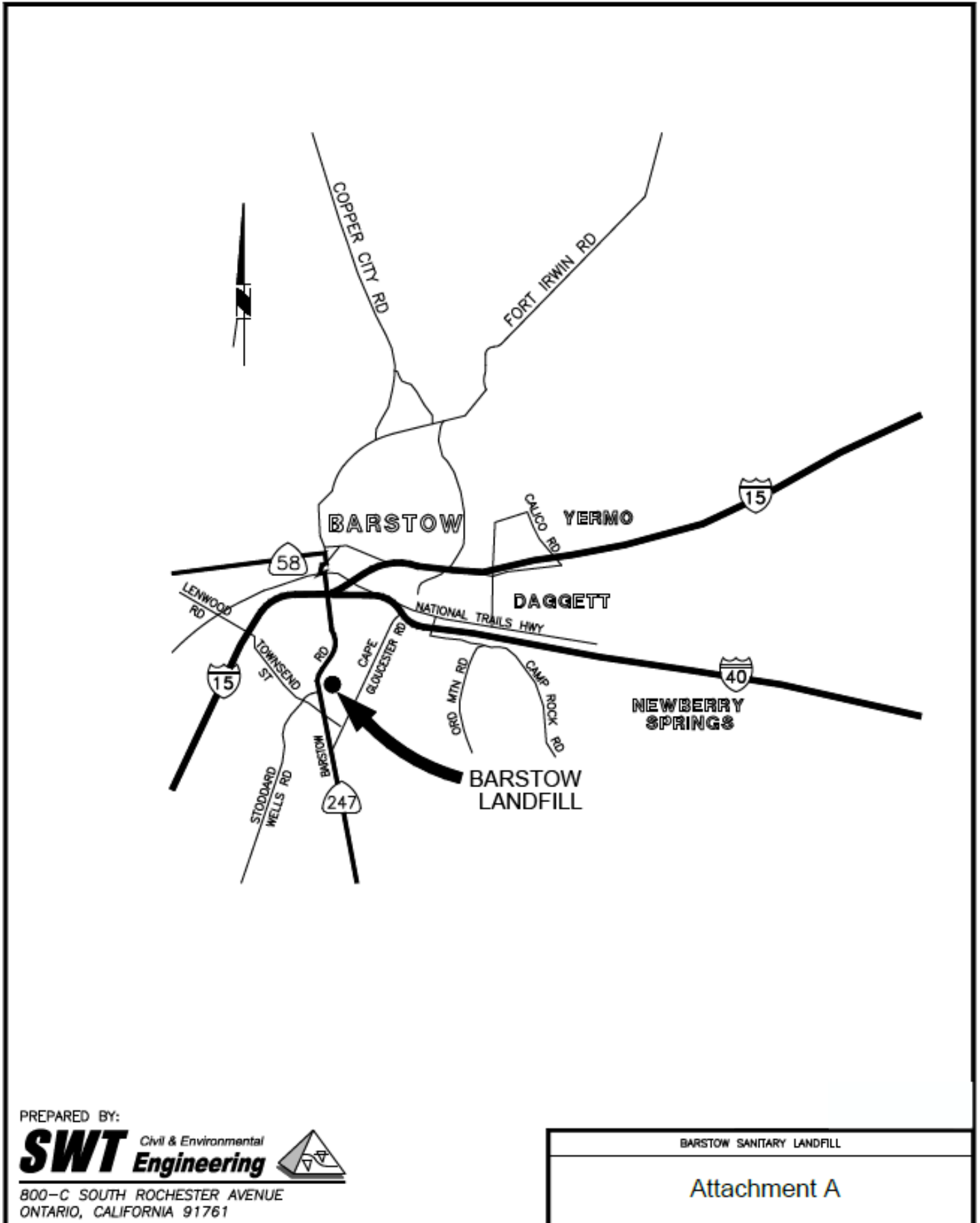
- c. The final sampling and analysis report must be submitted **no later than 90 days** following Water Board acceptance of the work plan. However, if the existing MRP sampling schedule permits, sampling may be conducted concurrently with the next scheduled monitoring and sampling event. The final sampling and analysis report would be due 90 days following the monitoring and sampling event.

I, Michael R. Plaziak, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by California Regional Water Quality Control Board, Lahontan Region, on March 9, 2022.

MICHAEL R. PLAZIAK, PG
EXECUTIVE OFFICER

- Attachments:
- A. Facility Location, Barstow Class III Landfill
 - B. Existing Facility, Phase 1B, and Future Phases, Barstow Class III Landfill
 - C. Discharge Limits, Barstow Class III Landfill
 - D. Standard Provisions for Waste Discharge Requirements

Barstow Class III Landfill, Site Location Map - Attachment A



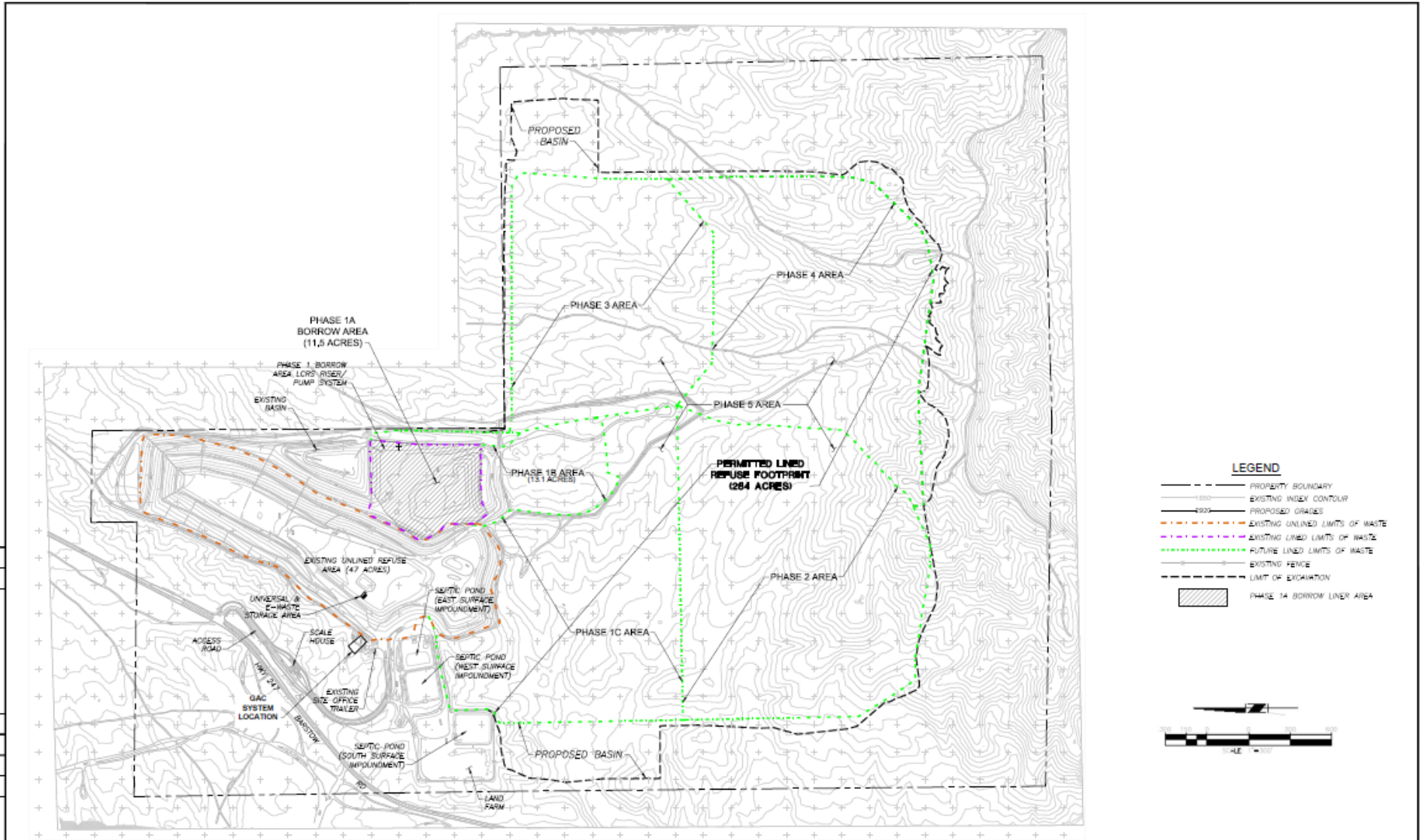
PREPARED BY:



800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

BARSTOW SANITARY LANDFILL
Attachment A

Barstow Class III Landfill, Existing Facilities, Phase 1B, and Future Phases - Attachment B



DATE	DESCRIPTION	BY	CHK

DATE OF TOPOGRAPHY: JUNE 30, 2020

FOR PERMIT PURPOSES ONLY NOT FOR CONSTRUCTION

DATE	DESCRIPTION	BY	CHK

Prepared by:
SWT Civil & Environmental Engineering
 800-C SOUTH ROCHESTER AVENUE
 ONTARIO, CALIFORNIA 91761



COUNTY OF SAN BERNARDINO			
DEPARTMENT OF PUBLIC WORKS			
DESIGNED BY	ENGINEER BY	PROJECT ENGINEER	RECOMMENDED / APPROVED BY
SUBMITTED BY			

BARSTOW SANITARY LANDFILL			
Attachment B			
DATE	ISSUE NO.	SCALE	BY
05-21		AS SHOWN	

ATTACHMENT C – DISCHARGE LIMITS

TREATED AUTO SHREDDER WASTE (TASW)		
Constituents	Units	Concentration
Cadmium ¹	milligrams/liter	1.0
Chromium (total) ¹	milligrams/liter	560
Chromium (VI) ¹	milligrams/liter	5.0
Copper ¹	milligrams/liter	25
Lead ¹	milligrams/liter	50
Mercury ¹	milligrams/liter	0.2
Nickel ¹	milligrams/liter	20
Zinc ¹	milligrams/liter	250

POLYCHLORINATED BIPHENYLS (PCBs)		
Constituents	Units	Concentration
STLC	milligrams/liter	5
TTLc	milligrams/kilogram	50

LANDFARM SOIL		
Constituents	Units	Concentration²
Antimony	milligrams/kilogram	20
Arsenic	milligrams/kilogram	16
Barium	milligrams/kilogram	150
Beryllium	milligrams/kilogram	2
Cadmium	milligrams/kilogram	2
Chromium, Total	milligrams/kilogram	20
Cobalt	milligrams/kilogram	6.9
Copper	milligrams/kilogram	25
Lead	milligrams/kilogram	9.1
Mercury	milligrams/kilogram	0.34
Molybdenum	milligrams/kilogram	10
Nickel	milligrams/kilogram	12
Selenium	milligrams/kilogram	4
Silver	milligrams/kilogram	2
Thallium	milligrams/kilogram	20
Vanadium	milligrams/kilogram	50
Zinc	milligrams/kilogram	49
Volatile Organic Compounds	micrograms/liter	2 x MDL ³

LANDFARM SOIL		
Constituents	Units	Concentration
Semi-volatile Organic Compounds	micrograms/liter	2 x MDL ³
Other Nutrients Added to Septage Soil ⁴	milligrams/kilogram	MDL

Notes:

¹ – The listed constituent and/or compounds of the listed constituent.

² – The upper 95 percentile tolerance limit.

³ – Two times the method detection limit.

⁴ – Ammonia as nitrogen, nitrate as nitrogen, and total phosphorus are constituents that could be included in additives to septage soil.

MDL – method detection limit

STLC – Soluble Threshold Limit Concentration

TTLC – Total Threshold Limit Concentration

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

STANDARD PROVISIONS
FOR WASTE DISCHARGE REQUIREMENTS

1. Inspection and Entry

The Discharger shall permit Regional Board staff:

- a. to enter upon premises in which an effluent source is located or in which any required records are kept;
- b. to copy any records relating to the discharge or relating to compliance with the Waste Discharge Requirements (WDRs);
- c. to inspect monitoring equipment or records; and
- d. to sample any discharge.

2. Reporting Requirements

- a. Pursuant to California Water Code 13267(b), the Discharger shall immediately notify the Regional Board by telephone whenever an adverse condition occurred as a result of this discharge; written confirmation shall follow within two weeks. An adverse condition includes, but is not limited to, spills of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance.
- b. Pursuant to California Water Code Section 13260 (c), any proposed material change in the character of the waste, manner or method of treatment or disposal, increase of discharge, or location of discharge, shall be reported to the Regional Board at least 120 days in advance of implementation of any such proposal. This shall include, but not be limited to, all significant soil disturbances.
- c. The Owners/Discharger of property subject to WDRs shall be considered to have a continuing responsibility for ensuring compliance with applicable WDRs in the operations or use of the owned property. Pursuant to California Water Code Section 13260(c), any change in the ownership and/or operation of property subject to the WDRs shall be reported to the Regional Board. Notification of applicable WDRs shall be furnished in writing to the new owners and/or operators and a copy of such notification shall be sent to the Regional Board.
- d. If a Discharger becomes aware that any information submitted to the Regional Board is incorrect, the Discharger shall immediately notify the Regional Board, in writing, and correct that information.

- e. Reports required by the WDRs, and other information requested by the Regional Board, must be signed by a duly authorized representative of the Discharger. Under Section 13268 of the California Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation.
- f. If the Discharger becomes aware that their WDRs (or permit) are no longer needed (because the project will not be built or the discharge will cease) the Discharger shall notify the Regional Board in writing and request that their WDRs (or permit) be rescinded.

3. Right to Revise WDRs

The Regional Board reserves the privilege of changing all or any portion of the WDRs upon legal notice to and after opportunity to be heard is given to all concerned parties.

4. Duty to Comply

Failure to comply with the WDRs may constitute a violation of the California Water Code and is grounds for enforcement action or for permit termination, revocation and re-issuance, or modification.

5. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of the WDRs which has a reasonable likelihood of adversely affecting human health or the environment.

6. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the WDRs. Proper operation and maintenance includes adequate laboratory control, where appropriate, and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the Discharger, when necessary to achieve compliance with the conditions of the WDRs.

7. Waste Discharge Requirement Actions

The WDRs may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for waste discharge requirement modification, revocation and re-issuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any of the WDRs conditions.

8. Property Rights

The WDRs do not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

9. Enforcement

The California Water Code provides for civil liability and criminal penalties for violations or threatened violations of the WDRs including imposition of civil liability or referral to the Attorney General.

10. Availability

A copy of the WDRs shall be kept and maintained by the Discharger and be available at all times to operating personnel.

11. Severability

Provisions of the WDRs are severable. If any provision of the requirements is found invalid, the remainder of the requirements shall not be affected.

12. Public Access

General public access shall be effectively excluded from treatment and disposal facilities.

13. Transfers

Providing there is no material change in the operation of the facility, this Order may be transferred to a new owner or operation. The owner/operator must request the transfer in writing and receive written approval from the Regional Board's Executive Officer.

14. Definitions

- a. "Surface waters" as used in this Order, include, but are not limited to, live streams, either perennial or ephemeral, which flow in natural or artificial water courses and natural lakes and artificial impoundments of waters. "Surface waters" does not include artificial water courses or impoundments used exclusively for wastewater disposal.
- b. "Ground waters" as used in this Order, include, but are not limited to, all subsurface waters being above atmospheric pressure and the capillary fringe of these waters.

15. Storm Protection

All facilities used for collection, transport, treatment, storage, or disposal of waste shall be adequately protected against overflow, washout, inundation, structural damage or a significant reduction in efficiency resulting from a storm or flood having a recurrence interval of once in 100 years.

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**MONITORING AND REPORTING PROGRAM
NO. R6V-2022-TENTATIVE
WDID NO. 6B360304005**

FOR

**SAN BERNARDINO COUNTY SOLID WASTE MANAGEMENT DIVISION,
BARSTOW CLASS III LANDFILL, CLASS II SURFACE IMPOUNDMENTS, AND
SEPTAGE SLUDGE LANDFARM**

_____ San Bernardino County _____

This Monitoring and Reporting Program (MRP) No. R6V-2022-TENTATIVE is issued to San Bernardino County Public Works Department, Solid Waste Management Division (Discharger) for the Barstow Class III Landfill, Class II Surface Impoundments, and Class II Land Treatment Unit (Facility) pursuant to California Water Code (CWC), section 13267 and incorporates requirements for groundwater and unsaturated zone monitoring and reporting; facility monitoring, maintenance, and reporting; and financial assurances reporting contained in California Code of Regulations (CCR), title 27, section 20005, et seq. The technical reports required by Board Order No. R6V-2022-TENTATIVE and MRP No. R6V-2022-TENTATIVE are necessary to assure compliance with the Waste Discharge Requirements. Therefore, the burden, including costs of these reports, bears a reasonable relationship to the need for the report and the benefits to be obtained from the reports.

I. WATER QUALITY PROTECTION STANDARD

A Water Quality Protection Standard (WQPS) is required by CCR, title 27, sections 20390 through 20410, to assure the earliest possible detection of a release from a waste management unit (WMU) to the underlying soil and/or groundwater. The WQPS consists of all constituents of concern (COCs), the concentration limits for each COC, the point of compliance, and all water quality monitoring points. The Water Board shall review and approve the WQPS, or any modification thereto, for each monitored medium.

The Discharger is currently implementing a detection monitoring program (DMP) to monitor groundwater and the unsaturated zone for the Facility. A WQPS is necessary to provide the best assurance of the earliest detection of any releases from the Facility.

A. Constituents of Concern

The COCs include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in a waste management unit. The COCs for each monitored medium are listed in Attachment A, which is made part of this MRP. The Discharger must monitor all COCs at the sampling frequency and reporting frequency listed in Attachment A.

B. Monitoring Parameters

Monitoring parameters are those COCs that provide a reliable indication of a release from the WMUs. The monitoring parameters for each monitored medium are listed in this MRP, Attachment A. The Discharger must monitor all monitoring parameters at the sampling frequency and reporting frequency listed in Attachment A.

C. Concentration Limits

Concentration limits are established for each COC and are intended to reflect background ambient conditions of surface and subsurface media that are unaffected by a release from the waste management units. At any given time, the concentration limit for each COC must be equal to the background data set of that constituent unless a concentration limit greater than background (CLGB) has been established. CCR, title 27, section 20415 allows for various options to determine concentration limits including statistical interwell and intrawell methods and non-statistical methods.

1. The Discharger is using the following methodologies to determine concentration limits for the groundwater monitoring program.
 - a. Intrawell Comparisons – The Discharger is using historical water quality data from individual groundwater monitoring wells to develop well-specific concentration limits for inorganic constituents. Intrawell comparisons for these COCs are appropriate because these COCs show spatial variation in water quality across the site and a release has already been detected in groundwater.
 - b. Non-Statistical Comparisons – For inorganic COCs either not detected in the background well or only detected at trace concentrations and for man-made organic COCs, the concentration limit is set at either the respective practical quantitation limit (PQL) or the method detection limit (MDL) for the analytical method used.
2. The concentration limits for all man-made COCs in soil-pore liquids are the respective MDLs. At this time, the Discharger is not required to have concentration limits for all other soil-pore liquid monitoring parameters listed in Attachment A. Historically, soil-pore liquid sample volume has been insufficient to monitor for COCs. Therefore, development of concentration limits for chloride, sulfate, total dissolved solids (TDS), and nitrate as nitrogen (nitrate as N) in soil-pore liquid is technically infeasible at this time. However, should sample volume be sufficient enough to analyze for the additional monitoring parameters (chloride, sulfate, TDS, and nitrate as N), these data could allow for the establishment of concentration limits for these parameters in the future.

3. The Discharger is not required to have concentration limits for soil-pore gas methane, carbon dioxide, nitrogen, and oxygen. These gases exist naturally in soil with a high degree of variability such that development of background concentrations would be technically infeasible. While VOCs are not naturally occurring in the soil, establishing concentration limits for VOCs in the unsaturated zone is technically infeasible at this time because few studies have evaluated the relationship between soil-pore gas VOC concentrations and the potential threat to water quality. The Discharger will collect soil-pore gas data in the unsaturated zone and use that data to characterize the relationship, if any, between landfill gas migration, soil-pore gas VOC concentrations, and the potential threat to water quality at the soil-groundwater interface.

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 Facility, the Discharger may request modification of the WQPS concentration limits to provide season-specific concentration limits (background data sets) for each COC at each monitoring point.

D. Point of Compliance and Monitoring Points

The point of compliance and monitoring points for the groundwater and unsaturated zone are shown in Attachment B of this MRP. The Discharger may add monitoring points, as needed, to comply with the DMP, evaluation monitoring program (EMP), and corrective action program requirements contained in Board Order No. R6V-2022-TENTATIVE and this MRP, and as approved by the Water Board.

The point of compliance is a vertical surface located at the hydraulically downgradient limit of the WMUs that extends through the uppermost aquifer underlying the Facility; however, an adequate monitoring network that includes a sufficient number of monitoring points at appropriate locations will need to be established for the Phase 1B expansion and future phases to monitor the point of compliance downgradient of the WMUs. Board Order No. R6V-2022-TENTATIVE, Section V.D., requires the Discharger to submit a work plan(s) for the installation of additional groundwater monitoring wells to monitor the point of compliance.

E. Compliance Period

The compliance period for municipal solid waste landfills is the number of years equal to the active life of the WMUs plus any post-closure monitoring and maintenance period (a minimum of 30 years during the Landfill post-closure period). The compliance period is the minimum period during which the Discharger must conduct a water quality monitoring program subsequent to a release. The compliance period must begin anew each time the Discharger

initiates an EMP. The compliance period may be extended if the Facility is not in compliance with its WQPS.

II. MONITORING

The Discharger must comply with the monitoring requirements outlined below. All monitoring and inspection activities must be documented, and all sampling must be conducted in accordance with an accepted Sampling and Analysis Plan (SAP) that includes quality assurance and quality control standards and procedures, as described in the General Provisions for Monitoring and Reporting (Attachment C of this MRP).

The Discharger must operate and maintain a detection monitoring system that complies with the DMP monitoring provisions contained in CCR, title 27, sections 20380 through 20435. Monitoring of the groundwater and unsaturated zone must be conducted to provide the best assurance of the early detection of any new releases from the Facility. Changes to the existing monitoring system must be designed and certified by a California-licensed professional geologist or professional civil engineer as meeting the requirements of CCR, title 27, section 20415(e)(1). The Discharger must collect, preserve, and transport samples in accordance with the SAP.

All samples collected in accordance with this MRP, except for field parameters, are to be analyzed by a California state-certified laboratory using United States Environmental Protection Agency (USEPA) analytical methods or the most recently approved SW-846 USEPA method or other equivalent USEPA method. An alternate method may be used if acceptable to the Executive Officer.

A. Surface Impoundments

The Discharger must monitor the composition of wastewater discharged to the surface impoundments through the collection of liquid and solid samples for laboratory analyses. All observations and measurements must be recorded in a permanent logbook kept onsite.

1. Monitoring Points

A liquid grab sample will be collected from each surface impoundment at a location, as specified herein: the discharge point, if possible, at a depth of one foot below the water surface elevation, and in a quiescent area of the surface impoundment. If a surface impoundment is dry at the time of monitoring, this information must be recorded and reported to the Water Board in accordance with the reporting requirements of this MRP, Section IV.B.

2. Monitoring Parameters and Constituents of Concern

The Discharger must monitor the surface impoundment liquids for all COCs and monitoring parameters in accordance with the frequencies listed in Attachment A.

3. Field Parameters

The Discharger must monitor the surface impoundment liquid for all field parameters in accordance with the frequencies listed in Attachment A.

4. Calibration Documentation

Annually, the Discharger must submit documentation of instrument calibration and performance checks to verify proper operation of all field monitoring equipment.

5. Dikes and Liners

The Discharger must visually inspect each of the surface impoundment dikes and exposed liners at a regular frequency (such as daily) to determine if there are any indication of loss of integrity. Should the inspection indicate that any unauthorized discharge has occurred, or may occur, the Discharger must notify the Water Board within 24 hours of the inspection, followed by confirmation in writing within 7 days.

Measure freeboard (in feet), as measured from the top of the lowest part of the dike to the water surface elevation in each surface impoundment. The measurement must be done at a regular frequency (such as daily) to determine if sufficient freeboard exists and to provide information on the operation of the impoundment system. A 2-foot freeboard must be maintained at all times.

6. Sludge

Collect a representative grab sample of the sludge (if present) of each surface impoundment, and analyze each sample for all COCs in accordance with the frequencies listed in Attachment A. Data must be collected and analyzed in accordance with the approved load-checking program for waste discharged to the surface impoundments.

B. Leachate Collection and Removal System

The Discharger must monitor the composition of liquids within the leachate collection and removal system (LCRS) through the collection of liquid samples for laboratory analysis. All observations and measurements must be recorded in a permanent logbook kept onsite.

1. Monitoring Points

The lined portions of the Landfill and the surface impoundments are equipped with an LCRS. The LCRS monitoring point locations are shown on MRP, Attachment B. If a LCRS is dry at the time of monitoring, this information must be recorded and reported to the Water Board in accordance with the reporting requirements of this MRP, Section IV.B.

2. Monitoring Parameters and Constituents of Concern

The Discharger must monitor LCRS liquids for all COCs and monitoring parameters in accordance with the frequencies listed in Attachment A.

3. Field Parameters

The Discharger must monitor the LCRS liquids for all field parameters in accordance with the frequencies listed in Attachment A.

4. Calibration Documentation

Annually, the Discharger must submit documentation of instrument calibration and performance checks to verify proper operation of all field monitoring equipment.

5. Inspections

a. Landfill

The Discharger must inspect the landfill LCRS monthly for leachate generation. Upon detection of liquid in a previously dry LCRS, the Discharger must immediately collect a grab sample of the liquid and analyze the sample for all COCs and monitoring parameters listed in Attachment A.

The Discharger must record, in conjunction with the regular LCRS inspection, the total volume of liquid pumped from each LCRS, the pumping rate (in gallons per month), date, and discharge location(s) of liquids pumped from the LCRS.

b. Surface Impoundments

The Discharger must inspect the surface impoundment LCRS at a regular frequency to determine the presence of liquid. Upon detection of liquid in a LCRS (1) at a volume greater than one-half of the Action Leakage Rate (ALR) or (2) for three consecutive liquid detections, the Discharger must immediately collect a grab sample

of the liquid and analyze the sample for all COCs and monitoring parameters listed in Attachment A.

The Discharger must record, in conjunction with the regular LCRS inspection, the volume of liquids pumped from the LCRS, the pumping rate (in gallons per day), date, and discharge location(s) of liquids pumped from the LCRS.

6. Surface Impoundment Action Leakage Rates

The Action Leakage Rates (ALRs) and Rapid and Large Leakage Rates (RLLRs) for the surface impoundments are shown in Table 1. The ALRs for the surface impoundments were derived from the 1992 USEPA guidance document, *Action Leakage Rates for Leak Detection Systems, Supplemental Background Document for the Final Double Liners and Leak Detection Systems Rule for Hazardous Waste Landfills, Waste Piles, and Surface Impoundments* and USEPA, and Code of Federal Regulations (CFR), Title 40, section 264.222. The ALRs for the surface impoundments are based on the surface areas of the surface impoundments multiplied by a factor of 20. The BN-South surface impoundment sump ALR is calculated based on the maximum design flow rate of the leak detection system (sump dimensions and slopes) that can be removed without liquid head on the bottom liner exceeding 1 foot. The RLLRs are based on the maximum design flow rates of the leak detection system (sump dimensions and slopes) that can be removed without liquid head on the bottom liner exceeding 1 foot. Table 1 summarizes the calculations of the ALRs.

Table 1. LCRS Action Leakage Rates and Rapid and Large Leakage Rates

Surface Impoundment LCRS	Surface Area (Acres)	Action Leakage Rates (gpd)	Rapid and Large Leakage Rates (gpd)
BN-East	1.2	24	600
BN-West	1.29	25.8	600
BN-South ¹	1.35	27	675

Notes: gpd = gallons per day.

¹ Rapid and Large Leakage Rate based on sump capacity.

If liquids are detected in the LCRS, the Discharger must take the response actions described in Table 2, LCRS Action and Response Levels.

Table 2. LCRS Action and Response Levels

Unit Flow Rate	Action/Response
Less than Action Leakage Rate	Record weekly flow rate and submit recorded flow rates with the next regularly scheduled monitoring report.
Greater than or equal to Action Leakage Rate	Notify the Water Board immediately (within 24 hours). Record daily flow rates and monitor. If detection of liquid in the LCRS (1) at a volume greater than one-half of the ALR or (2) for three consecutive liquid detections, the Discharger must immediately collect a grab sample of the liquid and analyze the sample for all COCs and monitoring parameters listed in Attachment A.
Greater than or equal to Rapid and Large Leakage Rate	Notify the Water Board immediately (within 24 hours). Cease discharge to the affected surface impoundment. Remove the contents within the surface impoundment and LCRS until the leakage rate is no longer exceeded and repair the liner. A sample must be collected and analyzed for the COCs and the monitoring parameters identified in Attachment A.

C. Unsaturated Zone Monitoring

The unsaturated (vadose) zone monitoring program monitors the composition of soil-pore gas, soil-pore liquid, and soil-pore moisture beneath and adjacent to the WMUs through the collection of gas and liquid samples for laboratory analyses and field measurements.

1. Monitoring Points

The unsaturated zone for the Landfill is monitored for soil-pore gas using gas probes located around the perimeter of the lined and unlined units and soil-pore liquids using pan lysimeters located beneath the LCRS sump portion of the lined cell(s). The unsaturated zone for the surface impoundments is monitored for soil-pore moisture using neutron probes. All unsaturated zone monitoring point locations are shown on MRP, Attachment C.

2. Monitoring Parameters and Constituents of Concern

The Discharger must monitor soil-pore gas and soil-pore liquid for all COCs and monitoring parameters in accordance with the frequencies listed in Attachment A.

a. Soil-Pore Gas

Prior to beginning gas collection at the Facility, the instrument(s) must be calibrated using laboratory-grade calibration gases and procedures according to manufacturer recommendations and the

accepted SAP. This must be done each day the instrument is used and whenever an instrument has been transported from one facility to another to ensure that the field calibration is performed at the same atmospheric pressure at which the soil-gas samples are collected.

Prior to sampling, each gas probe must be purged of the gas that has been standing inside the casing until methane, oxygen, and carbon dioxide concentrations have stabilized. These parameters will be considered stable when continuous readings have stopped fluctuating. Atmospheric pressure will also be recorded during the purging process.

b. Soil-Pore Liquid

If the liquid volume is limited, the Discharger must attempt to monitor for VOCs first then, if sufficient volume exists, attempt to monitor for the remaining monitoring parameters listed in Attachment A.

If a lysimeter is dry at the time of monitoring, this information must be recorded and reported to the Water Board in accordance with the reporting requirements of MRP, Section IV.B.

3. Field Parameters

The Discharger must monitor soil-pore gas, soil-pore liquid, and soil moisture for all field parameters in accordance with the frequencies listed in Attachment A.

a. Soil-Pore Gas

If methane gas is detected during field monitoring at or above a threshold concentration of 5 percent of methane gas volume in air, then soil-pore gas samples must be taken from that gas monitoring probe (during that monitoring event) and analyzed for the soil-pore gas monitoring parameters listed in Attachment A.

b. Soil-Pore Liquid

If the lysimeter sample volume is limited, the Discharger must monitor for COCs first and then, if sufficient sample volume exists, monitor for the field parameters listed in Attachment A.

c. Soil Moisture

The neutron probes measure soil moisture, and the results must be compared to previously determined background/ baseline soil

moisture content. All equipment used to measure/derive soil moisture must be calibrated as required by manufacture's recommendations for use at the site.

If moisture content is detected above 30 percent by volume, field verification testing must be performed and the Discharger must notify the Water Board and report physical evidence of a release, in accordance with MRP, Section, IV.C.1.a. Field verification testing will be required and may include a combination of additional neutron analysis and soil sampling to verify existence of a release.

4. Calibration Documentation

Annually, the Discharger must submit documentation of instrument calibration and performance checks to verify proper operation of all field monitoring equipment.

D. Groundwater

The groundwater monitoring program monitors the quality of groundwater that passes through the point of compliance as well as monitors the quality of groundwater upgradient, cross-gradient, and downgradient of the WMUs through the collection of groundwater samples for laboratory analysis and field measurement of water quality parameters.

1. Monitoring Points

Groundwater monitoring points are shown on MRP, Attachment C.

2. Depth to Groundwater

Prior to purging and sampling, the Discharger must measure and record the depth below the ground surface of the static groundwater elevation (feet below ground surface [bgs]) in all groundwater monitoring wells. The measurements must be accurate to the nearest 0.01 foot.

3. Groundwater Purging and Sampling

Prior to sampling, all groundwater monitoring wells must be purged using either standard or low-flow techniques until dissolved oxygen (DO), electrical conductivity, pH, temperature, and turbidity of extracted well water have stabilized. These parameters will be considered stable in accordance with procedures specified in the accepted SAP.

4. Monitoring Parameters and Constituents of Concern

The Discharger must monitor, at each groundwater monitoring well, all COCs and monitoring parameters in accordance with the frequencies listed

in Attachment A. Should any non-monitoring parameter COC exceed their respective concentration limit by a measurably significant amount at any given monitoring point, that non-monitoring parameter COC must become a monitoring parameter at that monitoring point.

5. Field Parameters and Supplemental Parameters

The Discharger must monitor the groundwater for all field parameters and supplemental parameters in accordance with the frequencies listed in Attachment A.

6. Aquifer Characteristics

The Discharger must calculate, and illustrate on a site plan and/or aerial photograph, the following aquifer characteristics: the depth to groundwater (feet bgs) in each groundwater monitoring well; the static water level (feet above mean sea level) in each groundwater monitoring well; the slope of the groundwater gradient (feet/feet); the direction of the groundwater gradient beneath and around the Facility; the velocity of groundwater flow (feet/year); and the current groundwater isocontours for that monitoring period.

7. Calibration Documentation

Annually, the Discharger must submit documentation of instrument calibration and performance checks to verify proper operation of the field monitoring equipment.

E. Treated Auto Shredder Waste

The following information regarding Treated Auto Shredder Waste (TASW) must be collected and reported, as specified below, in accordance with the schedule specified in this MRP, Section IV.B.

1. The Discharger must provide results of laboratory analyses of TASW for the constituents listed in Attachment A, in accordance with an accepted Sampling and Analysis Plan. Samples should be analyzed according to the Waste Extraction Text (WET) procedure described in CCR, title 22, section 66261.126, Appendix II (metals) and Appendix II, Table 4 (PCBs).

The Discharger must tabulate and report the quantity of TASW deposited each calendar month and the number of loads deposited from the TASW generators. Copies of all analytical results of TASW deposited must be included with each report.

2. The Discharger must notify the Water Board within 24 hours, and confirm in writing within five calendar days, of each load of TASW refused for disposal and the reason for refusal.

3. The Discharger must certify that each discrete load of TASW accepted for use as ADC at the landfill is non-hazardous.

F. Facility Monitoring

The following elements must be monitored and reported to the Water Board in accordance with the schedule specified in this MRP, Section IV.B.

1. Annual Inspection

Annually, prior to the anticipated rainy season, but no later than **September 30**, the Discharger must conduct an inspection of the Facility. The inspection must assess damage to the intermediate cover, drainage control system, groundwater monitoring equipment (including wells, etc.), and must include adequate observations to assess the condition of all WMUs. Any necessary construction, maintenance, or repairs must be completed **within 30 days** of the inspection. The Discharger must document the inspection and the repair measures implemented, including photographs of the problem and of the repairs.

2. Storm Events

The Discharger must inspect all precipitation, diversion, and drainage facilities for damage **within 10 days** following major storm events. Necessary repairs must be completed **within 30 days** of the inspection. The Discharger must document the inspection(s) and the repair measures implemented, including photographs of the problem and of the repairs.

G. Landfarm

The following elements of the Landfarm must be monitored and reported to the Water Board in accordance with the schedule specified in this MRP, Section IV.B. All monitoring and sampling must be performed in accordance with an approved Septage Management Plan and SAP.

1. To verify that the COCs and soil treatment nutrients are not migrating past the 5-foot vertical treatment zone of the Landfarm, soil samples must be collected immediately below the 5-foot zone and analyzed for the monitoring parameters at the frequencies listed in Attachment A. If results of sample analyses indicate that monitoring parameter concentrations are greater than the background limits previously established, then the Discharger must repeat sample collection at 1-foot intervals below the treatment zone until laboratory analytical results show that concentrations are no longer greater than background.

If monitoring parameter concentrations are found below the 5-foot treatment zone at concentrations greater than background, the Discharger

must notify the Water Board and report physical evidence of a release, in accordance with MRP, Section, IV.C.1.a.

2. For every batch of treated septage solids to be disposed of in the Landfill, representative samples must be collected and analyzed for the monitoring parameters listed in Attachment A to verify disposal criteria have been met, as specified in Board Order R6V-2022-TENTATIVE. Treated septage solids that meet the disposal criteria can only be discharged to the lined portions of the Landfill.

H. Solid Waste Discharge

The following data must be collected and reported, as specified below, for each semi-annual reporting period specified in MRP, Section IV.B.

1. The volume of non-hazardous solid waste (in-place and compacted volume in cubic yards) discharged to the Landfill.
2. The percent of the total Landfill volume used for solid waste disposal (remaining capacity of the Landfill units).
3. The volume of designated waste (in gallons and millions of gallons).
4. The volume of septage sludge (in cubic yards)
5. The location of discharge (on a map).
6. An evaluation of the effectiveness of the Facility's load checking program including, but not limited to, total number of vehicles, total number of vehicles checked, the amount rejected and returned to the customer, and the amount transported offsite for coordination of appropriate recycling or disposal.

III. DATA ANALYSES

All data analyses methods (statistical and non-statistical), must meet the requirements of CCR, title 27, sections 20415, subdivisions (e)(8) and (9).

A. Site-Specific Statistical Analysis Method

To determine whether there is "measurably significant" evidence of any new releases from the Facility, evaluation of data will be conducted using statistical methods. For detection monitoring, the Discharger must use statistical methods to analyze COCs and monitoring parameters that exhibit concentrations that equal or exceed their respective concentration limit. The Discharger may propose and use any data analyses that meets the requirements of CCR, title 27, section 20415, subdivision (e)(7). *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (USEPA, 2009) or subsequent versions may

also be used to select the statistical test to use for comparing detection monitoring data to background monitoring data.

B. Non-Statistical Analysis Methods

To determine if any new releases have occurred from the Facility, evaluation of data will also be conducted using non-statistical methods. Non-statistical analyses are as follows.

1. Physical Evidence

Physical evidence can include, but is not limited to, unexplained stress in biological communities such as vegetation loss, soil discoloration, or groundwater mounding. Each semi-annual and annual report must comment on such physical elements.

2. Time-Series Plots

Non-statistical evidence of a release may include trends of increasing concentrations of one or more constituents over time, as depicted in time-series plots. Each semi-annual and annual report must include these time-series plots. Time-series plots are not required for parameters that have never been detected above their MDL (as specified by the applicable USEPA method).

IV. REPORTING REQUIREMENTS

The Discharger must comply with the following reporting requirements.

A. Submittal of Electronic Laboratory Data

All water, soil, and soil-gas laboratory data collected during the corresponding reporting period (Table 3), must be submitted electronically to the Water Board by uploading to the State Water Board's GeoTracker system, per the following schedule. The laboratory data must be uploaded in Electronic Data Format (EDF).

Table 3. Laboratory Reporting Schedule

Sampling and Reporting Period	EDF Upload Due Date
January 1 – June 30	July 30
July 1 – December 31	January 30

B. Scheduled Reports to be Filed with the Water Board

The following periodic reports, including all water, soil, soil vapor, solid waste monitoring data collected during the corresponding reporting period, must be submitted electronically to the Water Board by uploading to the State Water

Board’s GeoTracker system, per the schedule presented in Table 4. The laboratory data must be uploaded in Electronic Deliverable Format (EDF).

Table 4. Monitoring and Reporting Schedule

MONITORING REPORTING SCHEDULE		
Report Name	Sampling and Reporting Period	Report Due Date¹
First Semi-Annual Monitoring Report	January 1 – June 30	July 30
Second Semi-Annual Monitoring Report	July 1 – December 31	January 30
Annual Monitoring Report	January 1 – December 31	April 30
Five-Year Constituent of Concern Report ²	January 1 – June 30 July 1 – December 31	July 30 January 30

Notes:

¹ Reports with same due dates may be combined.

² Sampling and reporting period will alternate between January 1 through June 30 for one five-year sampling event and July 1 through December 31 for the next five-year sampling event. The July 30 report due date corresponds to the January 1 through June 30 sampling and reporting period; the January 30 report due date corresponds to the July 1 through December 31 sampling and reporting period. The next five-year report is due January 30, 2026.

1. Semi-Annual Monitoring Reports

Each semi-annual report must include, but not be limited to, the following information.

- a. All data collected during the reporting period in accordance with the accepted SAP for the monitoring systems described in MRP Section II.A through II.E.
- b. Tabulated results of sampling and laboratory analyses for each groundwater monitoring point, including historical (last five years at minimum) and current reporting period data, as well as the concentration limit for each monitoring parameter and an identification of each sample that exceeds its respective concentration limit by a measurably significant amount at any given monitoring point.
- c. Tabulated results of sampling and laboratory analyses for each unsaturated zone monitoring point, including historical (last five years at minimum) and current reporting period data.
- d. A map and/or aerial photograph showing the Facility’s perimeter and ancillary facilities as well as locations of all monitoring points,

observation stations, and the surface trace of the point of compliance.

- e. Calculate and illustrate on a map and/or aerial photograph the static groundwater surface elevation (feet above mean sea level) in each groundwater monitoring well, the groundwater gradient (feet/feet) and the direction of the groundwater gradient beneath and around the Facility, the velocity of groundwater flow (feet/year), and the current groundwater isocontours for that monitoring period.
- f. Copies of all field monitoring and well sampling data sheets.
- g. Time-series plots of the analytical results from the groundwater and unsaturated zone monitoring at each monitoring point for each COC detected during the monitoring period as well as available historical data (minimum of last ten years of data). Time-series plots must include, as lines, the COCs concentration limit as derived in accordance with the WQPS for the respective COC/monitoring point pair, as well as the PQL and MDL for the analytical method used.
- h. Data collected in accordance with the accepted Septage Management Plan for the Landfarm.
- i. Data collected in accordance with accepted load-checking program for the surface impoundments.
- j. Information on the effectiveness of the load-checking program for the Landfill and surface impoundments.
- k. A letter transmitting the essential points of each report, including a discussion of any violations found since the last report was submitted and describing actions taken or planned for correcting those violations.
 - i. If the Discharger has previously submitted a detailed time schedule for correcting violations, a reference to the correspondence transmitting this schedule will suffice.
 - ii. If no violations have occurred since the last submittal, this must be stated in the letter of transmittal.

2. Annual Monitoring Reports

Annual monitoring reports must be submitted to the Water Board no later than **April 30** of each year and may be combined with the second semi-annual monitoring report for the same reporting year. The report must include the items described in the General Provisions for Monitoring and Reporting (Attachment C to this MRP), and the following information.

- a. All data collected in accordance with this MRP, Sections II.F through II.H.
- b. A list of all monitoring point/monitoring parameter pairs (pairs), by medium, which have exhibited a verified measurably significant increase, together with the respective date (for each) when that increase occurred. Any pairs that have shown an increase within that (prior) year must be indicated in the table, such as the use of bold-underlining of the data. In addition, by medium, list any non-monitoring parameter COCs that, during testing that year (tested every five years), have exceeded their respective concentration limit by a measurably significant amount and, as a result, have become monitoring parameters, together with the date when the transition occurred.
- c. Two maps, one for each semi-annual monitoring period of the last reporting year, showing the groundwater isocontours determined for that monitoring period, the Landfill and all ancillary facilities, all groundwater and unsaturated zone monitoring points, and the surface trace of the point of compliance.
- d. Calibration methods and any discrepancies of any meters used for field parameter evaluations after calibration is performed.
- e. An evaluation of the effectiveness of both the groundwater and unsaturated zone monitoring programs and any proposed modifications necessary to improve the monitoring programs.
- f. A brief chronological summary of dates of any operational problems and maintenance activities that may impact water quality at the site.
- g. The compliance record and the corrective actions taken or planned, which may be needed to bring the Facility into full compliance with the discharge requirements.
- h. Evidence that adequate financial assurance for closure, post-closure maintenance, and corrective action is still in effect for all WMUs. Evidence may include a copy of the renewed financial instrument or a copy of the receipt for payment of the financial instrument.
- i. Evidence that the financial assurance amount is adequate or increase the amount of financial assurance by an appropriate amount if necessary, due to inflation, a change in the approved closure plan, or other unforeseen events.
- j. The Discharger must review the Preliminary Closure Post-Closure Maintenance Plan annually to determine if significant changes in the operation of the Facility warrant an update to the plan. Proposed

changes to the plan must be outlined in the annual report.

3. Five-Year Constituent of Concern Monitoring and Reporting Program

Pursuant to CCR, title 27, section 20420, subdivision (g), every five years the Discharger must sample for COCs. Groundwater samples must be collected and submitted for laboratory analyses at all monitoring points once every five years for all monitoring parameters and COCs listed in Appendix I and Appendix II, Title 40, Code of Federal Regulations (40 CFR), Part 258 (Attachment A). Successive monitoring efforts must be carried out alternately during January 1 through June 30 of one five-year COC sampling event and July 1 through December 31 of the next five-year COC sampling event, and every fifth year, thereafter. The five-year COC sampling event must be reported no later than 45 days following the monitoring period. The last five-year sampling event occurred in September 2020 and was reported in 2021; therefore, the next five-year sampling event is scheduled to occur in second half of 2025 and reported to the Water Board no later than **January 30, 2026**.

4. One-Time Monitoring for Per- and Polyfluoroalkyl Substances Monitoring and Reporting Program

Pursuant to CWC, section 13267, the Discharger must conduct a one-time monitoring event to sample for per- and polyfluoroalkyl substances (PFAS). Samples must be collected and submitted for laboratory analyses at all monitoring points for all monitored media for all PFAS analytes listed in Attachment D. The one-time PFAS sampling event is to occur in **second half of 2022** and reported to the Water Board in the second semi-annual monitoring report due **no later than 90 days** following Water Board Acceptance of the PFAS Work Plan.

C. Unscheduled Reports to be Filed with the Water Board

The following reports must be submitted to the Water Board as specified below.

1. Notice of Tentative Release from the Facility

Should the statistical or non-statistical data analyses indicate, for a given COC, that a new release is tentatively identified, the Discharger must follow these requirements.

a. Physical or Measurably Significant Evidence of a Release from the WMUs

The Discharger must immediately notify the Water Board verbally whenever a determination is made that there is significant physical or "measurably significant" evidence of a release from the WMUs. This verbal notification must be followed by written notification via

certified mail within seven days of such determination. Upon such notification, the Discharger may initiate verification procedures or demonstrate that another source other than the WMUs caused evidence of a release in accordance with this MRP, Section IV.B.1.b.

The notification must include the following information:

- i. The potential source of the release;
- ii. General information including the date, time, location, and cause of the release;
- iii. An estimate of the flow rate and volume of waste involved;
- iv. A procedure for collecting samples and description of laboratory tests to be conducted;
- v. Identification of any water body or water-bearing media affected or threatened;
- vi. A summary of proposed actions; and
- vii. For a physical evidence of a release – the physical factors that indicate evidence of a release; or
- viii. For a measurably significant evidence of a release – the monitoring parameters and/or COCs that are involved in the measurably significant evidence of a release from the Landfill.

b. Other Source That May Cause Evidence of a Release from the WMUs

The Discharger may make a demonstration that a source other than the WMUs caused evidence of a release. For this case, the Discharger must notify the Water Board of the intention to make this demonstration. The notification must be sent to the Water Board by certified mail within 7 days of determining physical or measurably significant evidence of a release.

2. Evaluation Monitoring

The Discharger must, within 90 days of verifying a release, submit a technical report and amended report of waste discharge to establish an EMP pursuant to CWC, section 13267, subdivision (b), proposing an EMP meeting the provisions of CCR, title 27, section 20420, subdivision (k)(5). If the Discharger decides not to conduct verification procedures or decides

not to make a demonstration that a source other than the WMUs is responsible for the release, the release will be considered verified. The EMP must include the following information:

- a. COC Concentrations – the maximum concentration of each COC at each monitoring point as determined during the most recent COC sampling event (i.e., under CCR, title 27, section 20420, subdivision (g) or (k)[1]). Any COC that exceeds its concentration limit is to be retested at that monitoring point. Should the results of the retest verify that the COC is above the concentration limit, then that COC will become a monitoring parameter at that monitoring point;
- b. Proposed Monitoring System Changes – any proposed changes to the groundwater and unsaturated zone monitoring systems necessary to meet the provisions of CCR, title 27, section 20425;
- c. Proposed Monitoring Changes – any proposed additions or changes to the monitoring frequency, sampling and analytical procedures or methods, or statistical methods used at the Facility necessary to meet the provisions of CCR, title 27, section 20425; and
- d. Proposed Delineation Approach – a detailed description of the measures to be taken by the Discharger to assess the nature and extent of the release from the WMUs.

3. Exceeding the Leakage Rates for Surface Impoundment

Exceeding the ALRs for the surface impoundment LCRS is an Adverse Condition. The Discharger must immediately notify the Water Board verbally within 24 hours whenever a determination is made that leakage into the LCRS exceeds the ALR for the respective surface impoundment. This oral notification must be followed by written notification via certified mail within 7 days of such determination. This written notification must then be followed by a technical report via certified mail within 30 days of such determination. The technical report must describe the actions taken to abate the Adverse Condition and describe any proposed actions to abate future potential Adverse Conditions.

Exceeding the RLLRs is also an Adverse Condition. In addition to the requirements above for exceeding the ALRs, the technical report must include sampling results and a comparison of the wastewater in the surface impoundment and the leachate in the LCRS, as described in this MRP, Section II.B, Table 2.

4. Engineering Feasibility Study Report

Within 180 days of verifying the existence of any new release, the Discharger must submit a revised Engineering Feasibility Study report meeting CCR, title 27, section 20420, subdivision (k)(6), proposing corrective action measures that could be taken to achieve background concentrations for all COCs involved in the release. This report will be the basis for a later expanded Engineering Feasibility Study submitted under the EMP, as specified in CCR, title 27, section 20425, subdivision (b).

5. Monitoring Well Logs

All monitoring wells (including groundwater and unsaturated zone monitoring wells) and all other borings installed to satisfy the requirements of this MRP must be drilled by a licensed drilling contractor and must be logged during drilling under the direct supervision of either a California-licensed professional geologist or civil engineer with expertise in stratigraphic well logging, as indicated in CCR, title 27, section 20415, subdivision (e)(2). Such logs must be submitted to the Water Board within 90 days following completion of fieldwork.

6. Significant Earthquake Event

After a significant¹ or greater earthquake event at or near the Facility, the Discharger shall notify the Water Board within 48 hours, and within 45 days submit to the Water Board a detailed written post-earthquake report describing any physical damages to the containment features or groundwater and/or unsaturated zone monitoring systems or to report no damage to the Facility was sustained. The Discharger must closely examine the WMUs and appurtenant piping, inspect the slope conditions, drainage control system, and surface grading for signs of cracking or depressed/settled areas following the earthquake event. If cracking or depressed areas are identified, the Discharger must make repairs to those areas within 30 days from the date of the earthquake event. Repairs and maintenance must be consistent with Board Order No. R6V-2022-TENTATIVE.

D. Technical Reports

Pursuant to CWC, section 13267, subdivision (b):

¹ A significant earthquake is a seismic event classified according to the United States Geological Survey (USGS) Earthquake Hazard Program as a moderate earthquake measuring between 5 and 5.9 on the Richter scale, or higher. The Discharger may use the Modified Mercalli Intensity Scale VI or higher for equivalent ground shaking generated by a significant earthquake of Richter magnitude 5.0 or higher as contained with the USGS Earthquake Hazard Program Magnitude/Intensity Comparison chart found at <https://earthquakes.usgs.gov>.

1. Monitoring Systems Installation Report

No later than 90 days following completion of construction a monitoring system or monitoring system component, the Dischargers must submit a technical report discussing the installation of the monitoring system or component. The report must summarize all work activities associated with the installation of the monitoring system or component. The report must be certified by a California professional civil engineer or a California professional geologist. It must contain sufficient information to verify that the construction was in accordance with State and/or County standards.

2. Sampling and Analysis Plan

At least 60 days prior to the operation of a new WMU, the Discharger must submit a revised SAP to be accepted by the Water Board, including procedures for monitoring, sampling, and analysis for the Landfill, Surface Impoundments, Landfarm, LCRS, unsaturated zone, and groundwater. The SAP should include, as an appendix, the Septage Management Plan.

3. Water Quality Protection Standards

No later than 760 days following construction (8 quarters of monitoring, plus 30 days to generate the Water Quality Protection Standard), the Discharger must propose for acceptance by the Water Board a list of monitoring parameters and constituents of concern for each new monitoring point for which a WQPS has not been established, including a data analysis method, a revised WQPS, which includes concentration limits that define background water quality for all COCs and for each Point of Compliance. The report must be certified by a California licensed professional civil engineer or a California licensed professional geologist.

E. General Provisions

The Discharger must comply with Attachment C, "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of this MRP.

F. Failure to Furnish Reports

Any person failing or refusing to furnish technical or monitoring reports or falsifying any information provided therein is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation pursuant to CWC, section 13268.

G. Violations

If monitoring data indicate a violation of a specific requirement in these WDRs, the Discharger must report the violation in the scheduled report for the corresponding

reporting period and provide information indicating the cause of violation(s) and the action taken or planned to bring the discharge into compliance.

H. Electronic Reporting Requirements

Pursuant to CCR, title 23, section 3890, the Discharger must submit reports, including soil, soil-gas, and water data, prepared for the purpose of subsurface investigation or remediation of a discharge of waste to land subject to CCR, title 27, Division 2, electronically over the internet to the State Water Resources Control Board's GeoTracker system. This requirement is in addition to, and not superseded by, any other applicable reporting requirement. The Discharger must provide the monitoring report to the Water Board, as specified in this MRP, and upload the full monitoring report into GeoTracker, as stipulated by CCR, title 23.

For all other types of documents and correspondence, please send to the Water Board's email address at Lahontan@waterboards.ca.gov and include the WDID No. and Facility name in the subject line.

Ordered by: _____ Dated: _____

MICHAEL R. PLAZIAK, PG
EXECUTIVE OFFICER

- Attachments:
- A. Water Quality Monitoring Program
 - B. Monitoring Network, Barstow Class III Landfill
 - C. General Provisions for Monitoring and Reporting, September 1, 1994
 - D. PFAS Monitoring Program

ATTACHMENT A – WATER QUALITY MONITORING PROGRAM¹

SURFACE IMPOUNDMENT WASTEWATER AND LEACHATE COLLECTION AND RECOVERY SYSTEMS				
Parameter		Units	Sampling Frequency	Reporting Frequency
Field Parameters				
Dissolved Oxygen		milligrams/Liter	Semi-Annual	Semi-Annual
Electrical Conductivity		µmhos/cm	Semi-Annual	Semi-Annual
pH		pH units	Semi-Annual	Semi-Annual
Turbidity		NTU	Semi-Annual	Semi-Annual
Constituents of Concern				
Monitoring Parameters	Ammonia Nitrogen		milligrams/Liter	Semi-Annual
	Fecal Coliform		MPN/100 MLS	Semi-Annual
	Methylene Blue Active Substances		milligrams/Liter	Semi-Annual
	Nitrate as Nitrogen		milligrams/Liter	Semi-Annual
	Nitrite as Nitrogen		milligrams/Liter	Semi-Annual
	Total Coliform		MPN/ 100 MLS	Semi-Annual
	Total Kjeldahl Nitrogen		milligrams/Liter	Semi-Annual
	Volatile Organic Compounds ⁷		micrograms/Liter	Semi-Annual
Chemical Oxygen Demand		milligrams/Liter	Semi-Annual	Semi-Annual
Chloride		milligrams/Liter	Semi-Annual	Semi-Annual
Sulfate		milligrams/Liter	Semi-Annual	Semi-Annual
Total Dissolved Solids		milligrams/Liter	Semi-Annual	Semi-Annual
Antimony		milligrams/Liter	5 year	5 year
Arsenic		milligrams/Liter	5 year	5 year
Barium		milligrams/Liter	5 year	5 year
Beryllium		milligrams/Liter	5 year	5 year
Cadmium		milligrams/Liter	5 year	5 year
Chromium		milligrams/Liter	5 year	5 year
Cobalt		milligrams/Liter	5 year	5 year
Copper		milligrams/Liter	5 year	5 year
Lead		milligrams/Liter	5 year	5 year
Mercury		milligrams/Liter	5 year	5 year
Molybdenum		milligrams/Liter	5 year	5 year
Nickel		milligrams/Liter	5 year	5 year
Selenium		milligrams/Liter	5 year	5 year
Silver		milligrams/Liter	5 year	5 year
Thallium		milligrams/Liter	5 year	5 year
Vanadium		milligrams/Liter	5 year	5 year
Zinc		milligrams/Liter	5 year	5 year
Total Organic Carbon		milligrams/Liter	5 year	5 year
Volatile Organic Compounds ²		micrograms/Liter	5 year	5 year
Semi-Volatile Organic Compounds ³		micrograms/Liter	5 year	5 year
Chlorophenoxy Herbicides ³		micrograms/Liter	5 year	5 year

SURFACE IMPOUNDMENT WASTEWATER AND LEACHATE COLLECTION AND RECOVERY SYSTEMS			
Parameter	Units	Sampling Frequency	Reporting Frequency
Constituents of Concern (Continued)			
Organophosphorus Compounds ³	micrograms/Liter	5 year	5 year
Organochlorine Pesticides ³	micrograms/Liter	5 year	5 year
Polychlorinated Biphenyls ³	micrograms/Liter	5 year	5 year
PFAS ⁴	nanograms/Liter	One-time	One-time

SURFACE IMPOUNDMENT SLUDGE				
Parameter	Units	Sampling Frequency	Reporting Frequency	
Constituents of Concern				
Monitoring Parameters	Ammonia Nitrogen	milligrams/gram	Semi-Annual	Semi-Annual
	Fecal Coliform	MPN/100 MLS	Semi-Annual	Semi-Annual
	Nitrate as Nitrogen	milligrams/gram	Semi-Annual	Semi-Annual
	Nitrite as Nitrogen	milligrams/gram	Semi-Annual	Semi-Annual
	Total Coliform	MPN/ 100 MLS	Semi-Annual	Semi-Annual
	Total Kjeldahl Nitrogen	milligrams/gram	Semi-Annual	Semi-Annual
	Volatile Organic Compounds ²	micrograms/gram	Semi-Annual	Semi-Annual
Antimony	milligrams/gram	5 year	5 year	
Arsenic	milligrams/gram	5 year	5 year	
Barium	milligrams/gram	5 year	5 year	
Beryllium	milligrams/gram	5 year	5 year	
Cadmium	milligrams/gram	5 year	5 year	
Chromium	milligrams/gram	5 year	5 year	
Cobalt	milligrams/gram	5 year	5 year	
Copper	milligrams/gram	5 year	5 year	
Lead	milligrams/gram	5 year	5 year	
Mercury	milligrams/gram	5 year	5 year	
Molybdenum	milligrams/gram	5 year	5 year	
Nickel	milligrams/gram	5 year	5 year	
Selenium	milligrams/gram	5 year	5 year	
Silver	milligrams/gram	5 year	5 year	
Thallium	milligrams/gram	5 year	5 year	
Vanadium	milligrams/gram	5 year	5 year	
Zinc	milligrams/gram	5 year	5 year	
Total Organic Carbon	milligrams/gram	5 year	5 year	
Volatile Organic Compounds ²	micrograms/gram	5 year	5 year	
Semi-Volatile Organic Compounds ³	micrograms/gram	5 year	5 year	
Chlorophenoxy Herbicides ³	micrograms/gram	5 year	5 year	
Organophosphorus Compounds ³	micrograms/gram	5 year	5 year	
Organochlorine Pesticides ³	micrograms/gram	5 year	5 year	
Polychlorinated Biphenyls ³	micrograms/gram	5 year	5 year	
PFAS ⁴	nanograms/gram	One-time	One-time	

LANDFILL LEACHATE COLLECTION AND RECOVERY SYSTEM				
Parameter		Units	Sampling Frequency	Reporting Frequency
Field Parameters				
Total Flow		gallons	Quarterly	Semi-Annual
Flow Rate		gallons/month	Quarterly	Semi-Annual
Electrical Conductivity		µmhos/cm	Quarterly	Semi-Annual
pH		pH units	Quarterly	Semi-Annual
Constituents of Concern				
Monitoring Parameters	Chloride	milligrams/Liter	Annually	Annually
	Nitrate as Nitrogen	milligrams/Liter	Annually	Annually
	Sulfate	milligrams/Liter	Annually	Annually
	Total Dissolved Solids	milligrams/Liter	Annually	Annually
	Volatile Organic Compounds ²	micrograms/Liter	Annually	Annually
Antimony		milligrams/Liter	5 year	5 year
Arsenic		milligrams/Liter	5 year	5 year
Barium		milligrams/Liter	5 year	5 year
Beryllium		milligrams/Liter	5 year	5 year
Cadmium		milligrams/Liter	5 year	5 year
Chromium		milligrams/Liter	5 year	5 year
Cobalt		milligrams/Liter	5 year	5 year
Copper		milligrams/Liter	5 year	5 year
Lead		milligrams/Liter	5 year	5 year
Mercury		milligrams/Liter	5 year	5 year
Molybdenum		milligrams/Liter	5 year	5 year
Nickel		milligrams/Liter	5 year	5 year
Selenium		milligrams/Liter	5 year	5 year
Silver		milligrams/Liter	5 year	5 year
Thallium		milligrams/Liter	5 year	5 year
Vanadium		milligrams/Liter	5 year	5 year
Zinc		milligrams/Liter	5 year	5 year
Total Organic Carbon		milligrams/Liter	5 year	5 year
Volatile Organic Compounds ²		micrograms/Liter	5 year	5 year
Semi-Volatile Organic Compounds ³		micrograms/Liter	5 year	5 year
Chlorophenoxy Herbicides ³		micrograms/Liter	5 year	5 year
Organophosphorus Compounds ³		micrograms/Liter	5 year	5 year
Organochlorine Pesticides ³		micrograms/Liter	5 year	5 year
Polychlorinated Biphenyls ³		micrograms/Liter	5 year	5 year
PFAS ⁴		nanogram/Liter	One-time	One-time

UNSATURATED ZONE				
Parameter		Units	Sampling Frequency	Reporting Frequency
Soil-Pore Gas				
Field Parameters⁵				
Carbon Dioxide		Percent	Semi-Annual	Semi-Annual
Nitrogen		Percent	Semi-Annual	Semi-Annual
Oxygen		Percent	Semi-Annual	Semi-Annual
Methane		Percent	Semi-Annual	Semi-Annual
Constituents of Concern				
Monitoring Parameters	Volatile Organic Compounds	Parts per billion by volume	Conditional to methane field parameter results ⁶	Semi-annual
	Volatile Organic Compounds	Parts per billion by volume	5 year	5 year
	Semi-Volatile Organic Compounds	Parts per billion by volume	5 year	5 year
	Soil-Pore Liquid⁷			
Field Parameters				
Dissolved Oxygen (DO)		milligrams/Liter	Quarterly	Semi-Annual
Electrical Conductivity		µmhos/cm	Quarterly	Semi-Annual
pH		pH Units	Quarterly	Semi-Annual
Temperature		degrees Fahrenheit or Celsius	Quarterly	Semi-Annual
Turbidity		NTU	Quarterly	Semi-Annual
Constituents of Concern				
Monitoring Parameters	Chloride	milligrams/Liter	Semi-Annual	Semi-Annual
	Nitrate as Nitrogen	milligrams/Liter	Semi-Annual	Semi-Annual
	Sulfate	milligrams/Liter	Semi-Annual	Semi-Annual
	Total Dissolved Solids	milligrams/Liter	Semi-Annual	Semi-Annual
	Volatile Organic Compounds ²	micrograms/Liter	Semi-Annual	Semi-Annual
Antimony		milligrams/Liter	5 year	5 year
Arsenic		milligrams/Liter	5 year	5 year
Barium		milligrams/Liter	5 year	5 year
Beryllium		milligrams/Liter	5 year	5 year
Cadmium		milligrams/Liter	5 year	5 year
Chromium		milligrams/Liter	5 year	5 year
Cobalt		milligrams/Liter	5 year	5 year
Copper		milligrams/Liter	5 year	5 year
Lead		milligrams/Liter	5 year	5 year
Mercury		milligrams/Liter	5 year	5 year
Molybdenum		milligrams/Liter	5 year	5 year
Nickel		milligrams/Liter	5 year	5 year

UNSATURATED ZONE			
Parameter	Units	Sampling Frequency	Reporting Frequency
Soil-Pore Liquid⁷			
Constituents of Concern (Continued)			
Selenium	milligrams/Liter	5 year	5 year
Silver	milligrams/Liter	5 year	5 year
Thallium	milligrams/Liter	5 year	5 year
Vanadium	milligrams/Liter	5 year	5 year
Zinc	milligrams/Liter	5 year	5 year
Total Organic Carbon	milligram/Liter	5 year	5 year
Volatile Organic Compounds ²	micrograms/Liter	5 year	5 year
Semi-Volatile Organic Compounds ³	micrograms/Liter	5 year	5 year
Chlorophenoxy Herbicides ³	micrograms/Liter	5 year	5 year
Organophosphorus Compounds ³	micrograms/Liter	5 year	5 year
Organochlorine Pesticides ³	micrograms/Liter	5 year	5 year
Polychlorinated Biphenyls ³	micrograms/Liter	5 year	5 year
PFAS ⁴	nanograms/Liter	One-time	One-time

GROUNDWATER				
Parameter	Units	Sampling Frequency	Reporting Frequency	
Field Parameters				
Depth to Groundwater	feet below ground surface	Semi-Annual	Semi-Annual	
Groundwater Elevation	feet above mean sea level	Semi-Annual	Semi-Annual	
Dissolved Oxygen	milligrams/Liter	Semi-Annual	Semi-Annual	
Electrical Conductivity	µmhos/cm	Semi-Annual	Semi-Annual	
pH	pH units	Semi-Annual	Semi-Annual	
Temperature	degrees Fahrenheit or	Semi-Annual	Semi-Annual	
Turbidity	NTU	Semi-Annual	Semi-Annual	
Constituents of Concern				
Monitoring Parameters	Chemical Oxygen Demand	milligrams/Liter	Semi-Annual	Semi-Annual
	Total Dissolved Solids	milligrams/Liter	Semi-Annual	Semi-Annual
	Chloride	milligrams/Liter	Semi-Annual	Semi-Annual
	Nitrate as Nitrogen	milligrams/Liter	Semi-Annual	Semi-Annual
	Sulfate	milligrams/Liter	Semi-Annual	Semi-Annual
	Volatile Organic Compounds ²	micrograms/Liter	Semi-Annual	Semi-Annual
Antimony	milligrams/Liter	5 year	5 year	
Arsenic	milligrams/Liter	5 year	5 year	
Barium	milligrams/Liter	5 year	5 year	
Beryllium	milligrams/Liter	5 year	5 year	
Cadmium	milligrams/Liter	5 year	5 year	
Chromium	milligrams/Liter	5 year	5 year	
Cobalt	milligrams/Liter	5 year	5 year	

GROUNDWATER			
Parameter	Units	Sampling Frequency	Reporting Frequency
Constituents of Concern (Continued)			
Copper	milligrams/Liter	5 year	5 year
Lead	milligrams/Liter	5 year	5 year
Mercury	milligrams/Liter	5 year	5 year
Molybdenum	milligrams/Liter	5 year	5 year
Nickel	milligrams/Liter	5 year	5 year
Selenium	milligrams/Liter	5 year	5 year
Silver	milligrams/Liter	5 year	5 year
Thallium	milligrams/Liter	5 year	5 year
Vanadium	milligrams/Liter	5 year	5 year
Zinc	milligrams/Liter	5 year	5 year
Volatile Organic Compounds ²	micrograms/Liter	5 year	5 year
Semi-volatile Organic Compounds ³	micrograms/Liter	5 year	5 year
Total Organic Carbon	milligrams/Liter	5 year	5 year
Chlorophenoxy Herbicides ³	micrograms/Liter	5 year	5 year
Organophosphorus Compounds ³	micrograms/Liter	5 year	5 year
Organochlorine Pesticides ³	micrograms/Liter	5 year	5 year
Polychlorinated Biphenyls ³	micrograms/Liter	5 year	5 year
PFAS ⁴	nanograms/Liter	One-time	One-time

LANDFARM			
Parameter	Units	Sampling Frequency	Reporting Frequency
Antimony	milligrams/gram	Annual	Annual
Arsenic	milligrams/gram	Annual	Annual
Barium	milligrams/gram	Annual	Annual
Beryllium	milligrams/gram	Annual	Annual
Cadmium	milligrams/gram	Annual	Annual
Chromium	milligrams/gram	Annual	Annual
Cobalt	milligrams/gram	Annual	Annual
Copper	milligrams/gram	Annual	Annual
Lead	milligrams/gram	Annual	Annual
Mercury	milligrams/gram	Annual	Annual
Molybdenum	milligrams/gram	Annual	Annual
Nickel	milligrams/gram	Annual	Annual
Selenium	milligrams/gram	Annual	Annual
Silver	milligrams/gram	Annual	Annual
Thallium	milligrams/gram	Annual	Annual
Vanadium	milligrams/gram	Annual	Annual
Zinc	milligrams/gram	Annual	Annual
Volatile Organic Compounds ²	micrograms/gram	Annual	Annual
Semi-volatile Organic Compounds ³	micrograms/gram	Annual	Annual
PFAS ⁴	nanograms/gram	One-time	One-time

TREATED AUTO SHREDDER WASTE			
Parameter	Units	Sampling Frequency	Reporting Frequency
Cadmium ⁸	milligrams/Liter	Quarterly	Semi-Annual
Chromium (total) ⁸	milligrams/Liter		
Chromium (VI) ⁸	milligrams/Liter		
Copper ⁸	milligrams/Liter		
Mercury ⁸	milligrams/Liter		
Nickel ⁸	milligrams/Liter		
Zinc ⁸	milligrams/Liter		
Polychlorinated biphenyls (PCBs) ⁸	milligrams/Liter		

Notes:

NTU - Nephelometric Turbidity Units

MPN/100 MLS - most probable number per 100 milliliters

PFAS - Per- and Polyfluorinated Alkyl Substances

¹ Laboratory analytical data is uploaded to GeoTracker in accordance with the sampling frequency.

² As defined in Appendix I, 40 Code of Federal Regulations (CFR), part 258.

³ As defined in Appendix II, 40 CFR, part 258.µmhos/cm - micromhos per centimeter.

⁴ PFAS sampling and analysis in accordance with MRP R6V-2022-TENTATIVE, Attachment D.

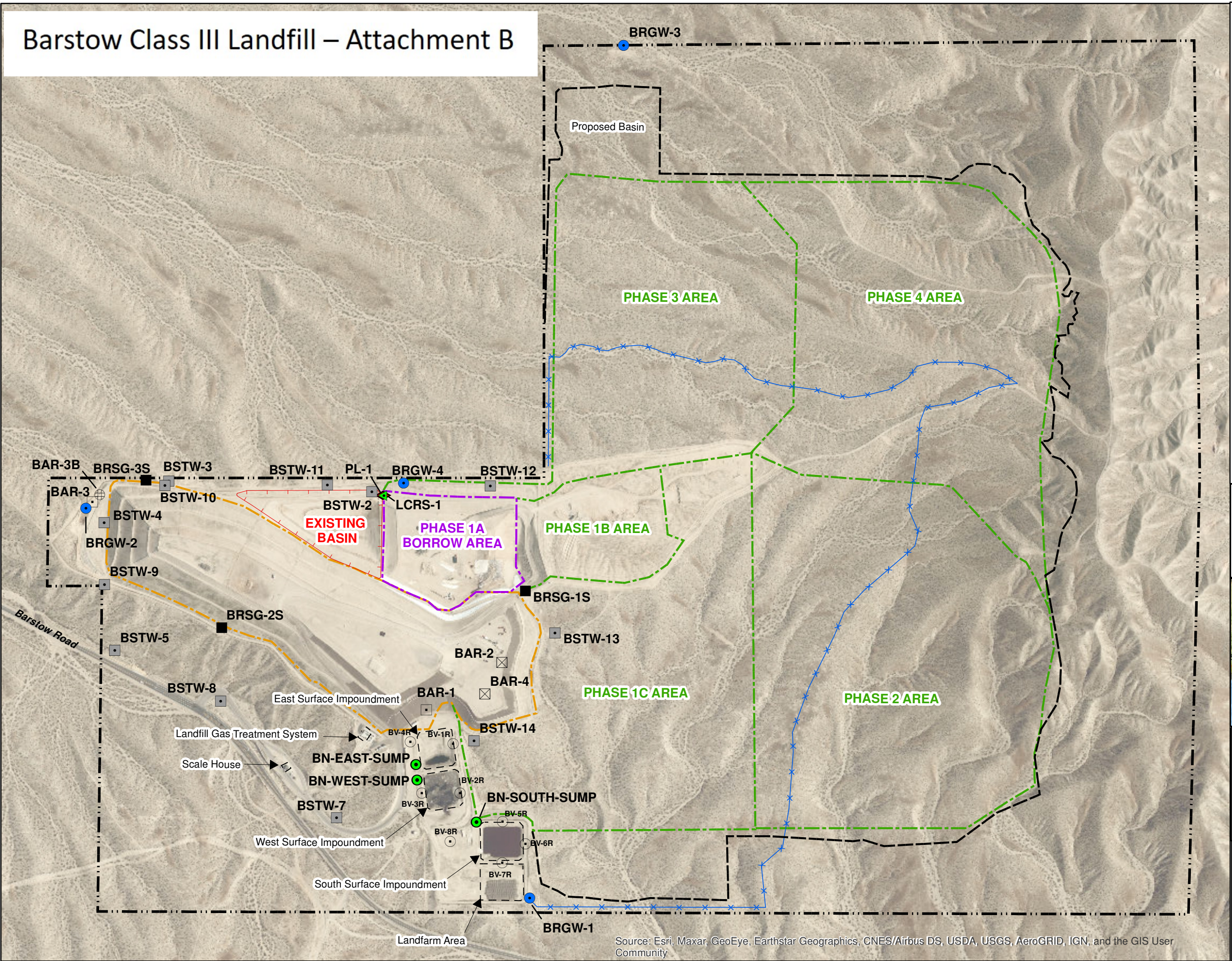
⁵ Field screened using a CES-LANDTEC GEM 2000 Gas Analyzer or equivalent field instrument.

⁶ If the threshold concentration of methane is detected above five percent by volume in any of the gas monitoring wells, samples will be collected and analyzed for VOCs.

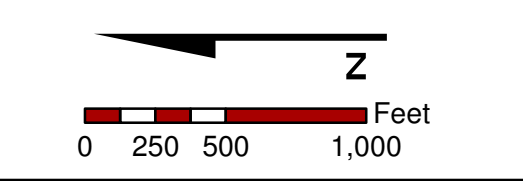
⁷ Pan lysimeters, suction lysimeters, soil-moisture probes (should field verification be required).

⁸ The listed constituents and/or compounds of the listed constituent.

Barstow Class III Landfill – Attachment B



- EXPLANATION:**
- ⊕ Exploratory Boring
 - Soil-Pore Gas Probe
 - Groundwater Monitoring Well
 - ▲ LCRS Sampling Point
 - Lysimeter
 - ⊗ Abandoned Lysimeter
 - ◆ Pan Lysimeter
 - Perimeter Gas Probe
 - Septage Sump
 - Neutron Probe Access Tube
 - Existing Lined Limits of Waste
 - Existing Unlined Limits of Waste
 - Existing Basin
 - Future Lined Limits of Waste
 - Limit of Excavation
 - Property Boundary
 - × Tortoise Fence



Produced by:
Geo-Logic ASSOCIATES

Barstow Class III Landfill Monitoring Network

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

GENERAL PROVISIONS
FOR MONITORING AND REPORTING

1. **SAMPLING AND ANALYSIS**

- a. All analyses shall be performed in accordance with the current edition(s) of the following documents:
 - i. Standard Methods for the Examination of Water and Wastewater
 - ii. Methods for Chemical Analysis of Water and Wastes, EPA
- b. All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Health Services or a laboratory approved by the Regional Board Executive Officer. Specific methods of analysis must be identified on each laboratory report.
- c. Any modifications to the above methods to eliminate known interferences shall be reported with the sample results. The methods used shall also be reported. If methods other than EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board prior to use.
- d. The Discharger shall establish chain-of-custody procedures to insure that specific individuals are responsible for sample integrity from commencement of sample collection through delivery to an approved laboratory. Sample collection, storage, and analysis shall be conducted in accordance with an approved Sampling and Analysis Plan (SAP). The most recent version of the approved SAP shall be kept at the facility.
- e. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and equipment to ensure accuracy of measurements, or shall insure that both activities will be conducted. The calibration of any wastewater flow measuring device shall be recorded and maintained in the permanent log book described in 2.b, below.
- f. A grab sample is defined as an individual sample collected in fewer than 15 minutes.
- g. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period at equal intervals. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.

2. OPERATIONAL REQUIREMENTS

a. Sample Results

Pursuant to California Water Code Section 13267(b), the Discharger shall maintain all sampling and analytical results including: strip charts; date, exact place, and time of sampling; date analyses were performed; sample collector's name; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

b. Operational Log

Pursuant to California Water Code Section 13267(b), an operation and maintenance log shall be maintained at the facility. All monitoring and reporting data shall be recorded in a permanent log book.

3. REPORTING

- a. For every item where the requirements are not met, the Discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and shall submit a timetable for correction.
- b. Pursuant to California Water Code Section 13267(b), all sampling and analytical results shall be made available to the Regional Board upon request. Results shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.
- c. The Discharger shall provide a brief summary of any operational problems and maintenance activities to the Board with each monitoring report. Any modifications or additions to, or any major maintenance conducted on, or any major problems occurring to the wastewater conveyance system, treatment facilities, or disposal facilities shall be included in this summary.
- d. Monitoring reports shall be signed by:
 - i. In the case of a corporation, by a principal executive officer at least of the level of vice-president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;
 - ii. In the case of a partnership, by a general partner;
 - iii. In the case of a sole proprietorship, by the proprietor; or

- iv. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.
- e. Monitoring reports are to include the following:
 - i. Name and telephone number of individual who can answer questions about the report.
 - ii. The Monitoring and Reporting Program Number.
 - iii. WDID Number.
- f. Modifications

This Monitoring and Reporting Program may be modified at the discretion of the Regional Board Executive Officer.

4. NONCOMPLIANCE

Under Section 13268 of the Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation under Section 13268 of the Water Code.

x:PROVISIONS WDRS

file: general pro mrp

ATTACHMENT D – PER- AND POLYFLUORINATED ALKYL SUBSTANCES (PFAS) MONITORING PROGRAM

TARGET REPORTING LIMITS

**FOR LC/MS/MS ANALYSIS OF PER- AND POLYFLUORINATED ALKYL ACIDS BY
DEPARTMENT OF DEFENSE QUALITY SYSTEM MANUAL (VERSION 5.1 OR LATER)**

Chemical Name/Abbreviation(s)	GeoTracker PARLABEL	Chemical Abstracts Service (CAS No.)	Aqueous: Landfill, Leachate, Landfill Gas Condensate, Wastewater (ng/L)	Aqueous: Groundwater (ng/L)	Solid: Soil (ng/g)	Solid: Biosolids/Sludge (ng/g)
Perfluorobutanoic acid (PFBA)	PFBTA	375-22-4	80.0	8.0	1.0	10.0
Perfluoropentanoic acid (PFPeA)	PFPA	2706-90-3	50.0	5.0	1.0	10.0
Perfluorohexanoic acid (PFHxA)	PFHA	307-24-4	50.0	5.0	1.0	10.0
Perfluoroheptanoic acid (PFHpA)	PFHPA	375-85-9	50.0	5.0	1.0	10.0
Perfluorooctanoic acid (PFOA)	PFOA	335-67-1	50.0	5.0	1.0	10.0
Perfluorononanoic acid (PFNA)	PFNA	375-65-1	50.0	5.0	1.0	10.0
Perfluorodecanoic acid (PFDA)	PFNDCA	335-76-2	50.0	5.0	1.0	10.0
Perfluoroundecanoic acid (PFUnDA, PFUda, PFUnA)	PFUNDCA	2058-94-8	50.0	5.0	1.0	10.0
Perfluorododecanoic acid (PFDoDA, PFDoA)	PFDOA	307-55-1	50.0	5.0	1.0	10.0
Perfluorotridecanoic acid (PFTrDA)	PFTRIDA	72629-94-8	50.0	5.0	1.0	10.0
Perfluorotetradecanoic acid (PFTeDA, PFTA)	PFTEDA	376-06-7	80.0	8.0	2.0	20.0
Perfluorohexadecanoic acid (PFHxDA)	PFHXDA	67905-19-5	80.0	8.0	2.0	20.0
Perfluorooctadecanoic acid (PFODA)	PFODA	16517-11-6	80.0	8.0	2.0	20.0
Perfluorobutane sulfonic acid (PFBS)	PFBSA	375-73-5	50.0	5.0	1.0	10.0
Perfluoropentane sulfonic acid (PFPeS)	PFPEs	2706-91-4	50.0	5.0	1.0	20.0
Perfluorohexane sulfonic acid (PFHxS)	PFHXSA	355-45-4	50.0	5.0	1.0	20.0

Chemical Name/Abbreviation(s)	GeoTracker PARLABEL	Chemical Abstracts Service (CAS No.)	Aqueous: Landfill, Leachate, Landfill Gas Condensate, Wastewater (ng/L)	Aqueous: Groundwater (ng/L)	Solid: Soil (ng/g)	Solid: Biosolids/Sludge (ng/g)
Perfluoroheptane sulfonic acid (PFHpS)	PFHPSA	375-92-8	50.0	5.0	1.0	20.0
Perfluorooctane sulfonic acid (PFOS)	PFOS	1763-23-1	50.0	5.0	1.0	20.0
Perfluorononane sulfonic acid (PFNS)	PFNS	474511-07-4	80.0	8.0	5.0	50.0
Perfluorodecane sulfonic acid (PFDS)	PFDSA	335-77-3	50.0	5.0	1.0	20.0
Perfluorooctanesulfonamide (PFOSA, PFOSAm, FOSA)	PFOSA	754-91-6	80.0	8.0	1.0	10.0
N-Ethyl perfluorooctane sulfonamide ethanol (EtFOSE)	ETFOSE	1691-99-2	80.0	8.0	2.0	20.0
N-Methyl perfluorooctane sulfonamide ethanol ² (MeFOSE)	MEFOSE	24448-09-7	80.0	8.0	2.0	20.0
N-Ethyl perfluorooctane sulfonamide ² (EtFOSA, EtFOSAm)	ETFOSA	4151-50-2	80.0	8.0	2.0	20.0
N-Methyl perfluorooctane sulfonamide (MeFOSA, MeFOSAm)	MEFOSA	31506-32-8	80.0	8.0	2.0	20.0
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	NMEFOSAA	2355-31-9	80.0	8.0	2.0	20.0
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	NETFOSAA	2991-50-6	80.0	8.0	2.0	20.0
Perfluorooctanesulfonamide (PFOSA, PFOSAm, FOSA)	PFOSA	754-91-6	80.0	8.0	1.0	10.0
N-Ethyl perfluorooctane sulfonamide ethanol (EtFOSE)	ETFOSE	1691-99-2	80.0	8.0	2.0	20.0
N-Methyl perfluorooctane sulfonamide ethanol ² (MeFOSE)	MEFOSE	24448-09-7	80.0	8.0	2.0	20.0

Chemical Name/Abbreviation(s)	GeoTracker PARLABEL	Chemical Abstracts Service (CAS No.)	Aqueous: Landfill, Leachate, Landfill Gas Condensate, Wastewater (ng/L)	Aqueous: Groundwater (ng/L)	Solid: Soil (ng/g)	Solid: Biosolids/Sludge (ng/g)
N-Ethyl perfluorooctane sulfonamide ² (EtFOSA, EtFOSAm)	ETFOSA	4151-50-2	80.0	8.0	2.0	20.0
N-Methyl perfluorooctane sulfonamide (MeFOSA, MeFOSAm)	MEFOSA	31506-32-8	80.0	8.0	2.0	20.0
N-Methyl perfluorooctane sulfonamidoacetic acid (NMeFOSAA)	NMEFOSAA	2355-31-9	80.0	8.0	2.0	20.0
N-Ethyl perfluorooctane sulfonamidoacetic acid (NEtFOSAA)	NETFOSAA	2991-50-6	80.0	8.0	2.0	20.0
4:2 Fluorotelomer sulfonic acid (4:2 FTS)	4:2FTS	757124-72-4	80.0	8.0	2.0	20.0
6:2 Fluorotelomer sulfonic acid (6:2 FTS)	6:2FTS	27619-97-2	80.0	8.0	2.0	20.0
8:2 Fluorotelomer sulfonic acid (8:2 FTS)	8:2FTS	39108-34-4	80.0	8.0	2.0	20.0
10:2 Fluorotelomer sulfonic acid (10:2 FTS)	10:2FTS	120226-60-0	80.0	8.0	2.0	20.0
2H,2H,3H,3H-Perfluorohexanoic acid (3:3 FTCA)	3:3FTCA	356-02-5	80.0	8.0	5.0	50.0
2H,2H,3H,3H-Perfluorooctanoic acid (5:3 FTCA)	5:3FTCA	914637-49-3	80.0	8.0	5.0	50.0
2H,2H,3H,3H-Perfluorodecanoic acid (7:3 FTCA)	7:3FTCA	812-70-4	80.0	8.0	5.0	50.0
Hexafluoropropylene Oxide Dimer Acid ² (HFPO-DA)	HFPA-DA	13252-13-6	80.0	8.0	5.0	50.0
4,8-Dioxa-3H-perfluorononanoic acid ² (ADONA)	ADONA	919005-14-4	80.0	8.0	5.0	50.0
9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid ² (9-CI-PF3ONS)	9CIPF3ONS	756426-58-1	80.0	8.0	5.0	50.0

Chemical Name/Abbreviation(s)	GeoTracker PARLABEL	Chemical Abstracts Service (CAS No.)	Aqueous: Landfill, Leachate, Landfill Gas Condensate, Wastewater (ng/L)	Aqueous: Groundwater (ng/L)	Solid: Soil (ng/g)	Solid: Biosolids/Sludge (ng/g)
11-Chloroeicosafuoro-3-oxaundecane-1-sulfonic acid ² (11-CI-PF3OUdS)	11CIPF3OUdS	763051-92-9	80.0	8.0	5.0	50.0
Nonafluoro-3,6-dioxaheptanoic acid ² (NFDHA)	NFDHA	151772-58-6	80.0	8.0	5.0	50.0
Perfluoro(2-ethoxyethane) sulfonic acid ² (PFEESA)	PFEESA	113507-82-7	80.0	8.0	5.0	50.0
Perfluoro-3-methoxypropanoic acid ² (PFMPA)	PFMPA	377-73-1	80.0	8.0	5.0	50.0
Perfluoro-4-methoxybutanoic acid ² (PFMBA)	PFMBA	863090-89-5	80.0	8.0	5.0	50.0

Notes:

The laboratory must use the minimum standard data qualifiers provided in the Department of Defense (DoD) Quality System Manual (QSM). These data qualifiers must be included in the analytical electronic data format (EDF) submittal into GeoTracker. Refer to GeoTracker's data dictionary for the valid values for data qualifiers at https://www.waterboards.ca.gov/ust/electronic_submittal/docs/edf_data_dict_2001.pdf. A quick search option for data qualifiers (EDF/LNOTE), and other fields within the EDF submittal is available at <https://geotracker.waterboards.ca.gov/searchvvl.asp>.

- ¹ These are the target reporting limits for the California Water Board Investigatory Orders and represent the highest reporting limits acceptable for reporting purposes. If a laboratory's reporting limit is lower than the target reporting limits listed, then the laboratory should report data using the laboratory's reporting limit.
- ² The acceptable quality control limits for these analytes are not listed in Table C-44 Method PFAS by LCMSMS Compliant with QSM Table B-15 Aqueous Matrix or Table C-45 Method PFAS by LCMSMS Compliant with QSM Table B-15 Solid Matrix of the DoD Quality Systems Manual (QSM), Version 5.3 at <https://denix.osd.mil/edqw/documents/>. If a Water Board regulatory directive requires the analysis of these analytes, the laboratory must use in-house acceptance criteria for control samples for these analytes per the DoD QSM.

ng/L – nanogram per liter
ng/g – nanogram per gram

The list of PFAS analytes on this table is a compilation of all compounds that could be included in a California Water Board Investigatory Order or another Water Board regulatory directive and is subject to change.