California Regional Water Quality Control Board

Santa Ana Region

June 19, 2020

STAFF REPORT

ITEM: 7

SUBJECT: Revised Waste Discharge Requirements for Riverside County Department of Waste Resources, for the closed Double Butte Sanitary Landfill, Winchester Area, Riverside County, Order No. R8-2020-0024

DISCUSSION:

The Riverside County Department of Waste Resources (hereinafter the Discharger) owns and operated the Double Butte Landfill (the Landfill), located at 31710 Grand Avenue in the unincorporated area of Winchester, Riverside County. The Landfill is a closed, unlined Class III, non-hazardous municipal solid waste (MSW) landfill that operated from December 1973 to September 1994. The Landfill is currently regulated under Waste Discharge Requirements (WDRs) Order No. 72-29, amended by Orders No. 80-196, 98-99 and Monitoring and Reporting Program No. 98-99-02.

The Discharger completed site closure construction in May 1997. On March 2, 1998, Regional Water Board staff approved the final closure construction report. Since then, the Discharger has been implementing post-closure maintenance at the Landfill.

The existing WDRs are being revised to include requirements that are consistent with the current federal and State laws and regulations applicable to post-closure maintenance and to reflect current conditions at the Landfill. This Order updates and replaces the existing WDRs for the Landfill and prescribes discharge, monitoring, and reporting requirements for post-closure maintenance and corrective action program implementation.

CORRECTIVE ACTION PROGRAM

Since 1992, chlorinated volatile organic compounds (VOCs), primarily trichloroethene (TCE), tetrachloroethene (PCE), 1,1-dichloroethane, cis 1,2-dichloroethene, and vinyl chloride have been detected in compliance groundwater monitoring wells at trace levels or at concentrations exceeding the federal and State Drinking Water Maximum Contaminant Levels. Consequently, the Regional Water Board adopted Cleanup and Abatement Order No. 94-31, as amended by Order No. 98-83, requiring the Discharger

to investigate and take appropriate corrective action in defining and abating the VOC contaminant plume from the Landfill.

To address the VOC release in groundwater, which is partially caused by diffusion of the landfill gas into the underlying water table, the Discharger has been actively operating a landfill gas extraction and collection system since 1997. The final cover also aids in minimizing water infiltration through waste; thereby, reducing landfill leachate and gas formation and lessening VOC impact to groundwater.

To fulfil the requirements of Cleanup and Abatement Orders, the Discharger implemented an evaluation monitoring program (EMP), spanning from 1996 through 2019, to define the extent of the VOC release. These investigation activities include: 1) site characterization to propose an EMP workplan; 2) installation of additional monitoring wells (both onsite and offsite) to define the extent of the VOC release; 3) acquisition of site access agreements from private property owners to install well(s) or access private wells to collect sampling data; and 4) ongoing evaluation of and optimization of the landfill gas extraction system and/or proposed additional remedial measure(s) in abating VOC impact in groundwater. On March 23, 2018, Cleanup and Abatement Order Nos. 94-31 and 98-83 were rescinded by Order No. R8-2018-0053 after Regional Water Board staff verified that all compliance items have been achieved.

On May 4, 2020, the Discharger submitted the EMP completion report for the Landfill. In the EMP report, the Discharger proposes to evaluate the feasibility of implementing enhanced in-situ bioremediation as an additional corrective action measure for groundwater already impacted by VOCs. An amended Report of Waste Discharge application will be submitted for any new corrective action measures and approval by the Executive Officer prior to implementation.

APPLICABLE LAWS AND REGULATIONS

The applicable regulations governing the discharge of MSW to land are contained in California Code of Regulations, Title 27, Division 2, Subdivision 1, *"Consolidated Regulations for Treatment, Storage, Processing or Disposal of Solid Waste*" (Title 27). Title 27 implements the federal regulations, Code of Federal Regulations Subpart D of Part 258 of Title 40 (Subtitle D), for MSW landfills.

The State and Regional Water Boards are authorized to regulate discharges of waste to land under Title 27. Title 27 generally deals with non-hazardous wastes, and it provides regulatory authority to the Water Boards and CalRecycle (formerly called the California Integrated Waste Management Board); it also clearly defines the responsibilities assigned to each agency. The regulations governing the disposal of waste to land include authority for the Regional Water Boards to adopt waste discharge requirements and to establish site-specific requirements for regulatory compliance, closure design,

and post-closure monitoring. The primary purposes of the regulations are to: 1) assure the protection of human health and the environment; 2) ensure waste is properly contained or cleaned up as appropriate; and 3) assure that surface and groundwater are protected from the discharge of waste to land. Title 27, Section 20430 requires the Discharger to implement a corrective action program to remediate releases from the Landfill to ensure that the Discharger achieves compliance with the Water Standards adopted under §20390 for the site.

The Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) lists the beneficial uses and water quality objectives for surface and groundwater bodies in the Region. The receiving water bodies for the Landfill site include Salt Creek and the Perris-South Groundwater Management Zone.

This Order contains waste discharge requirements that are consistent with Title 27 and Subtitle D Regulations, the Basin Plan, and other pertinent federal and State laws and regulations for post-closure maintenance and are considered to be adequate for the protection of the beneficial uses of the waters of the region.

RECOMMENDATION:

Adopt Order No. R8-2020-0024 as presented.

The draft Order has been sent to the following entities for review and comments:

U. S. Environmental Protection Agency, Region 9 - Steve Wall (wall.steve@epa.gov)
State Water Resources Control Board, Division of Clean Water Program – Brianna St. Pierre (Brianna.St.Pierre@waterboards.ca.gov)
State Water Resources Control Board, Office of Chief Counsel – Teresita Sablan (Teresita.Sablan@Waterboards.ca.gov)
State Water Resources Control Board, Division of Drinking Water - Sean McCarthy (Sean.mccarthy@waterboards.ca.gov)
CalRecycle – Megan Emslander (Megan.Emslander@calrecycle.ca.gov)
State Department of Fish and Game - Ed Pert (epert@dfg.ca.gov)
State Department of Toxic Substances Control, Cypress - Karen Baker (KBaker@dtsc.ca.gov)
South Coast Air Quality Management District – Angela Shibata (Ashibata@aqmd.gov)
Riverside County Department of Waste Resources – Hans Kernkamp (hkernkamp@rivco.org)
Riverside County Department of Waste Resources – Joseph McCann (jmccann@rivco.org)
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Riverside County Department of Environmental Health Services, LEA - Sandi Salas (SSalas@rivco.org)

STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION
ORDER NO. R8-2020-0024
WASTE DISCHARGE REQUIREMENTS
FOR
RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
DOUBLE BUTTE SANITARY LANDFILL
(POST-CLOSURE MAINTENANCE AND CORRECTIVE ACTION PROGRAM)
A CLOSED CLASS III SOLID WASTE DISPOSAL SITE
RIVERSIDE COUNTY

Discharger	RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
Facility	DOUBLE BUTTE LANDFILL (CLOSED CLASS III SOLID WASTE DISPOSAL SITE) 31710 GRAND AVENUE WINCHESTER, CALIFORNIA

The California Regional Water Quality Control Board, Santa Ana Region (hereinafter Regional Water Board), finds that:

1. The Riverside County Department of Waste Resources (hereinafter the Discharger) owns and operated the Double Butte Sanitary Landfill (the Landfill), a Class III non-hazardous waste landfill. The Landfill is located within the 580-acre Double Butte Park, at 31710 Grand Avenue in the unincorporated area of Winchester, Riverside County. Specifically, the majority of the Landfill is located in Section 20 and also occupies approximately the west ½ of the southwest ¼ of the southwest ¼ of Section 21, Township 5 South, Range 2 West, San Bernardino Baseline and Meridian (33.721° N-latitude, -117.109° W-longitude), as shown in **Attachment A**, which is hereby made a part of this Order.

2. The discharge of waste at the Landfill is regulated under Regional Water Board Order No. 72-29, amended by Orders No. 80-196, 98-99 and Monitoring and Reporting Program No. 98-99-02, in compliance with California Code of Regulations, Title 27, Division 2, Subdivision 1 (Title 27) and Title 40, Code of Federal Regulations, Part 258 (Subtitle D regulations) for non-hazardous municipal solid waste (MSW) landfills.

3. The terms and acronyms used in this Order are defined in Title 27, §20164 and are included as **Attachment B** to this Order.

4. The Landfill is a closed, Class III municipal solid waste (MSW) landfill that was operated from December 1973 to September 1994. Because there is no lateral expansion beyond the Landfill's October 1993 waste footprint, the Landfill is not

required to comply with the federal and State regulations to install a waste containment system. Therefore, the Landfill is not equipped with an engineered liner system or leachate collection and removal system. While the Landfill was operating, waste accepted at the Landfill included residential, commercial, municipal, agricultural, and special wastes, such as dead animals and non-hazardous contaminated soils, at approximately 350 tons per operating day.

5. The Landfill consists of four Waste Management Units: Unit A, Unit E, Unit F, and Unit G, as shown in **Attachment C-1**. The total Landfill waste footprint is approximately 112 acres of the 580-acre park. The estimated maximum refuse thickness in Units A, E, F, and G are 40, 75, 60, and 80, respectively. The predominant land uses in the vicinity of the Landfill are open space (Double Butte Mountains to the north, east, and west), residential (to the east, south, and west), and agricultural (to the south and west).

6. On April 26, 1995, Regional Water Board staff accepted the final Closure and Post-Closure Maintenance Plans (PCMP) for the Landfill. The final closure cover consists of a 2-foot thick foundation layer, overlain by a 1-foot thick compacted clay layer, and a 2-foot thick vegetative cover layer. Closure construction at the Landfill began in November 1995 and was completed in May 1997. On March 2, 1998, Regional Water Board staff approved the final closure construction report, dated October 1997. The 1995 PCMP was subsequently updated in June 2013 (approved by Regional Water Board staff on December 5, 2013) and in November 2018 (approved by Regional Water Board staff on January 28, 2019).

7. In March 2013, the Discharger recorded a deed notice with the County Recorder's Office for the Landfill to identify the prior use of the property as a solid waste disposal site. The Discharger has been implementing post-closure maintenance at the Landfill in accordance with the approved PCMP.

Geology and Hydrogeology

8. The Landfill is located in the northern part of the Peninsular Ranges Province. The Peninsular Ranges Province is a distinct geomorphic region characterized as a complex series of northwest-southeast oriented mountain ranges and valleys generally sub-parallel to faults composing the San Andreas Fault Zone. The Peninsular Ranges Geomorphic Province is delineated by 3 fault-bounded sub-units, which include the Santa Ana, Perris, and San Jacinto Blocks. The Perris Block, in which the Landfill is located, is characterized as a broad area of intermixed valleys and low mountain ranges situated between the Elsinore and San Jacinto Fault Zones.

9. No faults are known to transverse the Landfill area, although the region is bounded on the east and west by the San Jacinto and Elsinore Fault Zones, respectively. The closest fault to the Landfill is the Casa Loma fault, which is part of the San Jacinto Fault Zone, located about 7 miles to the northeast.

10. The Landfill is characterized by gently sloping, relatively flat alluvial surfaces and steep, rocky hillsides. The hillsides surrounding the Landfill are composed of Domenigoni granodiorite-tonalite to the west and Mesozoic schist to the east. The valley areas of the site are occupied by old alluvial fan deposits. The Landfill is surrounded by the Double Butte Mountains and occupies a small valley that extends from the surrounding mountains to the Winchester Valley to the south. The undeveloped mountain areas north, east, and west of the site drain toward Waste Management Units E, F, and G.

11. The Landfill is located in a canyon that is tributary to the Perris-South Groundwater Management Zone. Groundwater flow beneath the Landfill is generally to the south; depth to groundwater ranges from 20 feet to 39 feet below ground surface.

12. Groundwater flow beneath Units E, F and G is likely influenced by the northeast-southwest trending bedrock ridge that is in the central portion of the Landfill. For the Landfill, groundwater on the west side of the bedrock ridge, including groundwater underlying Unit A, is referred to as the West Groundwater Basin. Groundwater on the east side of the bedrock ridge, including groundwater underlying Units E, F, and G, is referred to as the East Groundwater Basin. Groundwater flow directions at the Landfill are shown in **Attachment C-2**.

13. The **West Groundwater Basin** is composed of the older alluvium, which fills the small valley separating the Landfill's central bedrock ridge and the Double Butte Mountains. It is anticipated that groundwater in the West Groundwater Basin flows in a southwesterly direction, following the direction of surface runoff. The bedrock ridge is not anticipated to convey groundwater in significant quantity. Groundwater was not encountered in several previous cone penetrometer test borings that were performed on the southern side of the bedrock ridge. Thus, a portion of the groundwater flow from the upland areas of the Landfill, north of Units F and G, flows southwest into the West Groundwater Basin.

14. On the east side of the bedrock ridge, in the **East Groundwater Basin**, groundwater likely follows the topography of this valley area and the predominant surface drainage pattern, and flows to the south. Groundwater flows through decomposed Domenigoni Valley Granodiorite and old alluvium. The old alluvium is thinner in the East Groundwater Basin than in the West Groundwater Basin.

Environmental Control Systems

15. The environmental control systems at the Landfill include the final closure cover, a landfill gas (LFG) extraction and collection system, a perimeter gas probe (vadose zone) monitoring system, and a groundwater monitoring system.

16. **LFG Extraction and Collection System**: The LFG collection system consists of a series of 51 vertical gas wells, lateral pipes, and a header pipe. LFG collected is combusted or vaporized ("flared") at the onsite flare station. LFG condensate at the Landfill is temporarily collected at two collection points, Sump 1 at Unit E and Sump 2 at Unit A, then pumped and stored in a 10,000-gallon storage tank, equipped with a secondary containment, at the flare station. The locations of the gas condensate sumps and flare station are shown in **Attachment C-1**.

17. **Vadose Zone Monitoring System**: Forty-eight multi-depth gas perimeter probes have been installed at the Landfill to detect offsite migration of LFG. These probes are also used for vadose zone monitoring to provide initial detection of gas migration to groundwater.

18. **Groundwater Monitoring**: Groundwater monitoring at the Landfill began in 1988 under the Solid Waste Assessment Test program. Since then, the Discharger has installed a total of 12 groundwater monitoring wells (DG-1 through DG-7, DG-8A, DG-8B, DG-9 through DG-11) at the Landfill. The current groundwater monitoring network, which includes Wells DG-1 through DG-11 and WIN-04 (an Eastern Municipal Water District monitoring well), is shown in **Attachment C**.

19. **Known Contamination**: In 1988, as part of the Solid Waste Assessment Test Program, seven groundwater monitoring wells (DG-1 through DG-7) were installed to detect a release from the Landfill. Since May 1992, chlorinated volatile organic compounds (VOCs), primarily tetrachloroethene (PCE), 1,1-dichloroethane, cis 1,2-dichloroethene, and vinyl chloride have been detected in compliance monitoring wells at the Landfill at concentrations exceeding the federal and State Drinking Water Maximum Contaminant Levels. On March 2, 1994, the Regional Water Board adopted Cleanup and Abatement Order No. 94-31, later amended by Order No. 98-83, requiring the Discharger to investigate and take appropriate corrective action in defining and abating the VOC contaminant plume from the Landfill.

20. In February 1995, the Discharger submitted an amended Report of Waste Discharge application to implement an evaluation monitoring program (EMP) to delineate the extent of VOC contamination under Title 27. As part of the EMP, five new monitoring wells (DG-8A, DG-8B, DG-9, DG-10 and DG-11) were installed and one private offsite well (WIN-04) were added to the EMP monitoring

network. In May 2007, Well DG-10, an offsite well located approximately 750 feet south of the Landfill, was installed to delineate the leading edge of the VOC plume south of the East Groundwater Basin. In July 2012, Regional Water Board staff requested additional investigation in the West Groundwater Basin to evaluate the lateral extent of the VOC release. As part of the EMP, Well DG-11, a compliance well at the Landfill boundary, was installed in April 2013. Trace VOCs below the federal and State Drinking Water Maximum Contaminant Levels (MCLs) have been detected in Wells DG-10 and DG-11.

21. Groundwater Remedial Measures: Currently, the remedies in place for the VOC contamination attributable to the Landfill are: 1) the LFG extraction system, which minimizes gas migration to groundwater; and 2) the final cover, which minimizes water infiltration through waste and leachate formation. The LFG extraction and collection system has been in operation since September 1997 to comply with South Coast Air Quality Management District Rule 1150.1. The Discharger continues to evaluate and optimize the operation of the LFG extraction system in minimizing gas migration to groundwater.

22. On March 23, 2018, Cleanup and Abatement Order Nos. 94-31 and 98-83 were rescinded by Order No. R8-2018-0053 after Regional Water Board staff verified that all compliance items had been achieved.

23. From 2016 to 2019, in completing the EMP, the Discharger successfully gained site access and monitored privately-owned offsite wells, Stonegate Property monitoring wells (MW-1 through MW-3) and Von Euw production wells, located approximately 200 to 800 feet, respectively, south and downgradient of the Landfill property. The locations of these private wells are shown in **Attachment D**. Trichlorofluoromethane has been detected at trace levels below the federal and State Drinking Water Maximum Contaminant Levels (MCLs) in the Von Euw wells. Tetrachloroethylene has been consistently detected at trace levels in Well MW-1.

24. On May 4, 2020, the Discharger submitted the EMP completion report, dated May 2020, for the Landfill. In the EMP report, the Discharger proposes to evaluate the feasibility of implementing enhanced in-situ bioremediation for groundwater already impacted by VOCs in 2021. An amended Report of Waste Discharge application will be submitted for any new remedial measures and remedial action program for approval by the Executive Officer prior to implementation.

Basin Plan

25. A Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) became effective on January 24, 1995. The Basin Plan specifies beneficial uses and water quality objectives for surface waters and groundwater in the Santa Ana Region. The water quality objectives and the groundwater basin boundaries (now known as groundwater management zones) were updated in January 2004. Further updates to the Basin Plan were adopted in February 2008, June 2011, February 2016, and June 2019.

26. Surface drainage from the Landfill is tributary to Salt Creek. The beneficial uses of Salt Creek include:

    a. Municipal and domestic supply,

    b. Primary contact recreation,

    c. Secondary contact recreation,

    d. Warm freshwater habitat, and

    e. Wildlife Habitat.

27. The Landfill overlies the Perris-South Groundwater Management Zone, the beneficial uses of which of which include:

    a. Municipal and domestic supply, and

    b. Agricultural supply.

28. This Order updates and replaces Order No. 72-29, as amended by Order Nos. 80-196, 98-99, and MRP No. 98-99-02, to prescribe revised waste discharge, monitoring, and reporting requirements for post-closure maintenance and corrective action program (CAP) implementation at the Landfill in compliance with current federal and State regulations for MSW landfills.

29. This Order updates waste discharge requirements for an existing landfill; therefore, it is categorically exempt from the provisions of the California Environmental Quality Act (Public Resources Code, § 21000 et seq) in accordance with California Code of Regulations, Title 14, Chapter 3, Section 15301.

30. The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to update the existing waste discharge requirements for

the Landfill and has provided them with an opportunity to submit their written views and recommendations.

31. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to updating the existing waste discharge requirements.

IT IS HEREBY ORDERED that the Discharger, in order to meet the applicable provisions contained in the California Code of Regulations (CCR), Title 27, shall comply with the following:

A. DISCHARGE SPECIFICATIONS

1. General

    a. The Discharger shall maintain the Landfill so that it will neither cause nor contribute to a pollution or nuisance, as defined in the California Water Code (CWC), §13050.

    b. The Discharger shall maintain the Landfill closure cover to minimize the infiltration of water into the waste, thereby, minimizing the production of leachate and gas [Title 27, §20950(a)(2)(A)(1)].

    c. The Discharger shall perform post-closure maintenance at the Landfill in accordance with the approved PCMP. Landfill post-closure maintenance shall continue until such time as the Landfill waste no longer constitutes a potential threat to water quality [Title 27, §20950(a)(2)(A)(2)].

2. Groundwater

    a. When requested by the Executive Officer of the Regional Water Board (the Executive Officer), the Discharger shall implement and evaluate the effectiveness of the Corrective Action Program (CAP) in remediating releases, and if necessary, shall propose alternative(s) and/or additional corrective measures such as, but not limited to:

        i. Expansion of the LFG extraction system;

        ii. Improvements to the landfill cover; or

        iii. Performance of additional site characterization and/or environmental control system evaluation to identify and implement additional corrective measures.

    b. Corrective action measures implemented to remediate a water quality release may be discontinued when the concentrations of Constituents of

Concern (COCs) have been reduced to acceptable levels consistent with the concentration limits, defined in **Attachment B** and specified in Section B.7 of the attached Monitoring and Reporting Program No. R8-2020-0024 (the MRP) of this Order, throughout the entire zone affected by the release. To demonstrate completion of CAP, the concentrations of each COC must remain at or below its respective concentration limits at the Point of Compliance (POC) for a minimum of eight sampling events within three consecutive years after suspending the corrective action measures [Title 27, §20430(g)(2)].

3. **Water Quality Protection Standards** - The Landfill shall not cause the concentration of any COC to exceed its respective concentration limit in any monitored medium at any monitoring point or well specified in the MRP, which is attached to this Order.

B. DISCHARGE PROHIBITIONS

1. The discharge of unauthorized liquids, such as groundwater, leachate or landfill gas condensate, or their use for dust control or irrigation at the Landfill is prohibited. This prohibition does not apply to the discharge of liquids in accordance with a disposal plan approved by the Executive Officer, or that are regulated under a separate permit issued by the Regional Water Board or a conditional waiver of waste discharge requirements.

2. The disposal of waste at the Landfill is prohibited. Should illegal dumping occur at the site, the Discharger shall remove and properly dispose of any wastes or relocate those wastes to a permitted waste disposal facility.

3. Odor, vectors, and other nuisances of waste beyond the limits of the Landfill are prohibited.

4. The discharge of waste to property not owned or controlled by the Discharger is prohibited.

C. PROVISIONS

1. **General** - The Discharger shall comply with all discharge specifications, prohibitions, provisions, and shall implement the attached MRP immediately upon its adoption.

2. The Discharger shall maintain a copy of this Order at the Discharger’s headquarters, to be made available for review at all times.

3. The Discharger shall permit Regional Water Board staff to:

a. Enter upon the Landfill;

b. Copy any records required to be kept under the terms and conditions of this Order;

c. Photograph or obtain video records of any structures, facilities, activities, or other phenomena that could result in adverse impacts to water quality and that are pertinent to compliance with this Order; and

d. Sample any discharges from the Landfill.

4. **Drainage and Erosion Control** - The Discharger shall inspect and maintain the Landfill to prevent, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, and washout that could occur as a result of precipitation from a 100-year, 24-hour storm. This shall be accomplished by, at a minimum, the following:

    a. Top deck surfaces shall be constructed to achieve a minimum of one percent (1%) slope, including structures that will direct water to downdrains or other necessary drainage conveyance structures;

    b. Drainage conveyance structures must be constructed for all sideslopes; and

    c. All components of the facility drainage system must be designed and constructed to withstand site-specific maximum intensity precipitation (peak flow from a 100-year, 24-hour storm).

5. The Discharger shall inspect and maintain waste containment structures to ensure their effectiveness and to prevent commingling of leachate and gas condensate with surface run-on and runoff.

6. The Discharger shall design, construct, and maintain:

    a. A run-on drainage control system to prevent flow from off-site sources onto the Landfill, and to collect and divert the peak flow calculated volume from off-site sources that result from a 100-year, 24-hour storm;

    b. A runoff drainage control system to collect and divert both the calculated volume of precipitation and the peak flow from on-site surface runoff that results from a 100-year, 24-hour storm; and

    c. Drainage control structures to divert natural seepage from native ground and to prevent such seepage from entering the waste disposal area.

7. All drainage structures shall be protected and maintained to assure their effectiveness.

8. **Landfill maintenance and winterization** – Annually, by October 1, all final cover and drainage control system maintenance to prepare the site for the winter rainy season shall be completed.

9. The Discharger shall submit as-built drawings within 4 weeks of completing construction of any new elements of the drainage control systems at the Landfill.

10. All design plans, construction plans, and operation and maintenance plans shall be prepared by, or prepared under the direct supervision of, a registered civil engineer or a certified engineering geologist.

11. **Facility survey** – The Landfill shall be topographically surveyed by aerial surveillance, or by a registered civil engineer or licensed surveyor in accordance with the schedules in **Table 1A** of the attached MRP.

12. **Reporting/Notification requirements** – The Discharger shall notify Regional Water Board staff by telephone or email within 48 hours (or 2 business days) of any non-compliance items or failure of facilities necessary to maintain compliance with the requirements of this Order. Within 7 days, the Discharger shall submit a written report, documenting the non-compliance items and proposing corrective measures to achieve compliance with this Order.

13. **Leachate seep notification** - The Discharger shall notify the designated Regional Water Board staff within 48 hours by telephone or email upon discovery of any seepage from, or soil staining at, the Landfill. If feasible, a sample of the seep shall be collected and analyzed. In response to such seepage, the Discharger shall submit a corrective action report to the Regional Water Board for approval by the Executive Officer within 7 days, containing at least the following information:

    a. Map – a map showing the location(s) of seepage;

    b. An estimate of the flow rate or volume;

    c. A description of the nature of the discharge (e.g., all pertinent observations and analyses); and

    d. Corrective measures proposed to address any seep(s).

14. **Response/Reporting for a new release** - If either the Discharger or Regional Water Board staff determines that there is significant physical evidence of a new

release, the Discharger shall confirm that a release has been discovered and shall:

a. Within 7 days, notify Regional Water Board staff of this fact by mail (or acknowledge the Regional Board staff's determination).

b. Within 90 days of discovering a release, either:

   i. Propose revised concentration limits and/or additional corrective measure(s), for review and approval by the Executive Officer, to address the new release, or

   ii. Submit an amended Report of Waste Discharge, proposing an evaluation monitoring program (EMP) required under Title 27, §20385(a)(3).

c. Carry out any additional investigations stipulated in writing by the Executive Officer.

15. **Release beyond facility boundary notification** - Any time the Discharger concludes that a new liquid- or gaseous-phase release has traveled beyond the Landfill boundary, the Discharger shall make the following notifications to all persons who either own or reside upon land that overlies any part of the plume (Affected Persons):

    a. Initial notification to Affected Persons shall be accomplished within 14 days of confirming a release and shall include a description of the Discharger's current knowledge of the nature and extent of the release.

    b. Subsequent to the initial notification, the Discharger shall provide updates to all Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding there has been any material change in the nature or extent of the release.

    c. Annually, the Discharger shall notify Affected Persons concerning the status of the release and any corrective action being taken or planned.

    d. Each time the Discharger sends a notification to the Affected Persons (under a. or b., above), the Discharger shall, within seven days of sending such notification, provide the Regional Board with both a copy of the notification and the mailing list of the Affected Persons. In the case of an annual notification to the Affected Persons (c. above), notification to the Regional Board shall be via the Annual Summary Report.

e. All notifications to all Affected Persons shall include (at a minimum) the following information:

i. A summary of the release and corrective action information.

ii. Contact information (i.e., Regional Board, City, and County Environmental Health Department).

iii. The results of the most recent monitoring data and its availability.

16. Response to VOC Detection in Background Monitoring Point

a. Except as indicated in 16.b, below, any time the laboratory analysis of a sample from a background monitoring point shows either three or more VOCs above their respective Method Detection Limit (MDL), or one VOC above its respective Practical Quantitation Limit (PQL), the Discharger shall:

i. Within 48 hours, notify Regional Water Board staff by phone or email that possible background monitoring point contamination has occurred.

ii. Follow up with written notification by mail within 7 days.

iii. Immediately obtain one new independent VOC sample from the background monitoring point and send for laboratory analysis of only the VOCs that were initially detected above the concentration limit.

b. If the sample collected pursuant to 16.a.iii, above, validates the presence of a VOC(s) at the background monitoring point, the Discharger shall:

i. Within 48 hours, notify Regional Water Board staff that the VOC(s) have been verified to be present at that background monitoring point.

ii. Provide written notification by mail within 7 days of validation.

iii. Within 180 days of validation, submit an Optional Demonstration Report [Title 27, §20420(k)(7)], which examines the possibility that the detected VOC(s) originated from other than the Landfill, and proposes appropriate changes to the concentration limits.

c. If the Executive Officer determines, after reviewing the Optional Demonstration Report required in 16b.iii, above, that the VOC(s) detected originated from a source other than the Landfill, the Discharger may propose appropriate changes to the concentration limit(s).

d. If the Executive Officer determines, after reviewing the Optional Demonstration Report, that the detected VOC(s) originated from the Landfill, the Discharger shall carry out the appropriate responses under Section B.15 of the MRP.

17. **Technical report request** - The Discharger shall furnish, under penalty of perjury, technical or monitoring program reports, requested by the Executive Officer of the Regional Water Board, in accordance with CWC, §13267. Failure or refusal to furnish these reports or falsifying any information provided therein may render the Discharger guilty of a misdemeanor and subject to the penalties stated in CWC, §13268. Additionally, technical and monitoring reports shall be prepared and signed by a registered civil engineer or registered geologist.

18. The Discharger shall furnish, within 90 days of notification, unless the Executive Officer specifies an alternative date, any information the Regional Water Board may request to determine whether cause exists for modifying, reissuing, or terminating this Order. The Discharger shall also furnish to the Regional Water Board, upon request, copies of records that this Order requires the Discharger to maintain.

19. **Signatory requirement** - Applications, reports or information submitted to the Regional Water Board shall be signed and certified by either a principal executive officer or ranking elected/appointed official of the Discharger.

20. **MRP Modification** - At any time, the Discharger may file a written request, including appropriate supporting documents, with the Executive Officer, proposing modifications to the MRP. The Discharger shall implement any monitoring changes in the revised MRP approved by the Executive Officer upon receipt of a signed copy of the revised MRP.

21. **CAP completion demonstration** - Within 60 days, or other time schedule approved by the Executive Officer, following the completion of the CAP in Section A.2.b, above, the Discharger shall submit a report, demonstrating the completion of the CAP.

22. The Discharger shall file an addendum to the Report of Waste Discharge, in the form of a joint technical document, at least 180 days prior to the following:

a. Any proposed change in site maintenance activities, which would significantly alter existing drainage patterns and slope configurations, or pose a potential threat to the integrity of the closure cover.

b. Any proposed change in waste limit (e.g. excavation and relocation or consolidation of waste).

c. Any proposed significant change in remedial measure(s) to address a groundwater release.

d. Any proposed change in post-closure land use.

e. Any planned change in the regulated facility or activity, which may result in noncompliance with the Order.

23. **Land ownership change** - In the event of any change in control or ownership of the Landfill property currently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter. A copy of this letter shall be signed by the new owner, accepting responsibility for complying with this Order and shall be forwarded to the Executive Officer. The notification letter shall be given to the succeeding owner/operator prior to the effective date of the change and shall include a statement by the new discharger that design, construction, and operations associated with post-closure maintenance at the Landfill will be in compliance with this Order and any revisions thereof.

24. **Post-closure monument survey** - The Discharger shall establish and maintain monuments in California coordinates (or equivalent) to define the boundary of the Landfill footprint and to monitor differential settlement at the Landfill. The control benchmarks shall be certified by a licensed surveyor or a professional civil engineer authorized to practice in California.

25. **Financial Assurance Plans** - The Discharger shall maintain assurances of financial responsibility for:

    a. Post-Closure maintenance activities pursuant to Title 27, §22212; and

    b. Corrective action activities pursuant to Title 27, §22222.

26. This Order hereby rescinds and replaces Order Nos. 72-29, 80-196, and removes all portions of WDRs in Order No. 98-99 and monitoring and reporting requirements in Monitoring and Reporting Program No. 98-99-02 that are specific to the Landfill; therefore, Order No. 98-99 and Monitoring and Reporting Program No. 98-99-02 are no longer applicable to the Landfill.

I, Hope A. Smythe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Santa Ana Region, on June 19, 2020.

_____

Hope A. Smythe

Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

MONITORING AND REPORTING PROGRAM NO. R8-2020-0024

FOR
RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES

FOR
DOUBLE BUTTE SANITARY LANDFILL
CLOSED CLASS III SOLID WASTE DISPOSAL SITE
RIVERSIDE COUNTY

Discharger	RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
Facility	DOUBLE BUTTE LANDFILL (CLOSED CLASS III SOLID WASTE DISPOSAL SITE) 31710 GRAND AVENUE WINCHESTER, CALIFORNIA

A. GENERAL

1. The Riverside County Department of Waste Resources (hereinafter the Discharger) shall perform monitoring activities specified in Monitoring and Reporting Program No. R8-2020-0024 (the MRP), in accordance with California Code of Regulations, Title 27 (Title 27), §§20380 - 20430 (Water Quality Monitoring and Response Programs), for the Double Butte Sanitary Landfill (the Landfill).

2. Sample collection, storage, and analyses shall be performed in accordance with the latest edition of "*Test Methods for Evaluating Physical/Chemical Methods*" (SW-846) promulgated by the United States Environmental Protection Agency (USEPA), and in accordance with a sampling and analysis plan acceptable to the Executive Officer of the Regional Water Board (the Executive Officer). A State of California accredited laboratory must be used to perform water quality analyses. Specific methods of analysis must be identified.

3. At any time, the Discharger may file a written request, including appropriate supporting documents, with the Executive Officer, proposing modifications to the MRP. The Discharger shall implement any changes in the revised MRP approved by the Executive Officer upon receipt of a signed copy of a revised monitoring and reporting program.

4. The Discharger shall implement general monitoring requirements in accordance with Title 27, §20415(e) for well installation, water quality sampling and analysis, and data analysis.

5. **Monitoring Well Installation** - For any monitoring wells proposed for installation at the Landfill, the Discharger shall submit well design and construction documents for approval by Regional Board staff prior to installation. All monitoring wells shall be designed and constructed in accordance with California Department of Water Resources California Well Standards, Bulletin 74-9, or the revised version thereafter. The well design and construction documents shall be submitted at least 60 days prior to the anticipated date of installation of the well(s), and shall include the following:

    a. Proposed locations of the monitoring well(s); and
    b. Proposed design and construction details of the monitoring well(s). These details shall include:
        i. well casing and borehole diameters;
        ii. well casing, annular, and filter materials;
        iii. well depth and well screen intervals;
        iv. the means by which the size and position of perforations shall be determined, or verified, if in the field;
        v. method of drilling and joining sections of casing;
        vi. filter and annular material placement methods;
        vii. depth and composition of soils; and
        viii. well development procedures.

    A final well construction report shall be submitted within 60 days after completion of well installation.

6. **Disposal of Purged Well Water** - The Discharger shall provide for proper handling and disposal of water purged from monitoring wells at the Landfill during sampling. Water purged from a monitoring well shall not be returned to that well or any other monitoring well. Purged water may be discharged to the ground, outside of the Landfill footprints, in a manner so that it will percolate back into the aquifer in the same general area from which it came, provided that adequate measures are taken to contain purge water within the property controlled by the Discharger.

B. WATER QUALITY MONITORING

1. The Discharger shall implement the water quality monitoring program specified in **Tables 1A** and **1B**, **Attachment E** of the MRP and as follows for the Landfill:

    a. **Detection Monitoring Program (DMP)** - The Discharger shall implement a DMP, pursuant to Title 27, §20420, to detect a new release from the Landfill. The Discharger shall implement Sections B.14 and B.15 of the MRP to identify and verify a new release.

b. **Evaluation Monitoring Program (EMP)** - In the event of the discovery and confirmation of a new release from the Landfill, the Discharger shall implement the requirements of Title 27, §20425 to assess the nature and extent of the new release and to design a corrective action program meeting the requirements of Title 27, §20430.

c. **Corrective Action Program (CAP)** – The Discharger shall implement the CAP, pursuant to Title 27, §20430, for the release of volatile organic compounds (VOCs). The compliance period of the CAP shall end when the Discharger successfully demonstrates, and the Regional Water Board concurs, after termination of the corrective action remediation measures and that the Landfill has been in compliance with its Water Quality Protection Standard (WQPS) for a period of, at least, three consecutive years.

d. **Unsaturated (or Vadose) Zone Monitoring Program** – The Discharger shall conduct unsaturated zone monitoring in accordance with Title 27, §20415(d) to provide the best assurance of the earliest possible detection of a release from the Landfill.

2. **Water Quality Protection Standard (WQPS)** - The Discharger shall perform the monitoring activities in compliance with the WQPS specified in Title 27, §20390. The WQPS shall consist of a list of Monitoring Points or Wells, the Point of Compliance (POC), Constituents of Concern (COCs) and their respective concentration limits. The WQPS shall apply during post-closure maintenance period.

3. **Monitoring Points** - In accordance with Title 27, §20405, the monitoring points or wells for the CAP and DMP are shown in **Table 2, Attachment E** and **Attachment C-2** of the MRP.

4. **Point of Compliance (POC)** – In accordance with Title 27, §20405, the POC is a vertical surface located at the hydraulically downgradient limit of each waste management unit (WMU) that extends through the uppermost aquifer underlying the WMU at the Landfill. The POC for the Landfill is shown in **Table 2, Attachment E**.

5. **Monitoring Parameters**, listed in **Table 3, Attachment E,** include:

   a. Metal surrogates and inorganic constituents;
   b. 47 Appendix I organic constituents in **Table 4, Attachment E**;
   c. Appendix II organic constituents (**Table 5, Attachment E**) that are detected and confirmed at one or more monitoring points during a 5-year

COC analysis (see Section B.13, below) using approved data analysis methods; and

d. Any degradation by-products of confirmed VOCs.

The Monitoring Parameter list shall be updated at least every 5 years with new constituents detected and confirmed in landfill gas condensate and 5-year COC testing.

6. **Uninvolved Monitoring Parameters** are Appendix II Constituents that are not Monitoring Parameters.

7. **Concentration Limits** - The concentration limit for each COC shall be determined as follows:

   a. In cases where the constituent's (e.g. a VOC) method detection limit (MDL) is exceeded in less than 10 percent (%) of the historical samples, the concentration limit is the highest Practical Quantification Limit (PQL) value associated with the Monitoring Point/COC (Well/COC) pair's historical data set.

   b. In cases where the inorganic constituent's (e.g. metal surrogates) MDL is exceeded in 10% or more of the historical samples, a statistically-based concentration limit must be defined and regularly updated as follows:

      i. Statistically analyze the historical background data set, and propose to the Executive Officer a statistically derived concentration limit for each COC at each Monitoring Point (Well) for which there are at least 8 reference (background) data points. The statistical analysis shall comply with Title 27, §20415.

      ii. In cases where there are less than 8 reference data points, for a given Well/COC pair, the Discharger shall collect samples quarterly until each such data deficient Well/COC pair has at least 8 reference data points, at which point, the Discharger shall submit proposed concentration limits, together with a proposed data analysis method for each Well/COC pair to the Executive Officer for approval. This data collection and submittal to the Executive Officer shall take no longer than 2 years.

   c. **VOCs in background** - In cases where the organic or synthetic constituent's PQL is exceeded in 10% or more of the historical data set, and:
      i. The organic or synthetic constituent is from a source other than the Landfill. Each such Well/COC pair must have its concentration limit

determined by applying an approved data analysis method to its historic data set, just like a readily detectable inorganic constituent would be addressed. The Discharger shall submit an Optional Demonstration Report, in accordance with Section C.16.b.iii of this Order, to demonstrate that a source other than the Landfill caused the evidence of a release, and propose appropriate changes to the concentration limit(s). Changes to the concentration limits shall not be effective until approved by the Executive Officer.

ii. The organic or synthetic constituent is from the Landfill. Each such Well/COC pair's concentration limit shall be the highest PQL value associated with the Well/COC pair's historical data set. The Discharger may propose a concentration limit greater than background (CLGB), provided that the proposed concentration limit is in accordance with Title 27, §20400. The proposed CLGB shall not be effective until approved by the Executive Officer.

8. **Concentration Limits Greater than Background (CLGBs)** - Pursuant to Title 27, §20400, the Discharger has proposed and the Executive Officer has approved CLGBs for COCs in groundwater at the Landfill. The CLGBs are presented in **Table 7, Attachment E** of the MRP.

9. **Concentration limit update** – As part of the annual summary reporting, the Discharger shall review and update the statistically-derived concentration limits every 2 years. Recent data that have been statistically analyzed in accordance with Section B.12.b, below, and is determined to be statistically similar to existing background data, shall be made a part of the revised background data set. This new background data set shall be used to statistically-derive the revised concentration limits. The revised background data set and concentration limits shall be effective during the reporting period upon approval by Regional Water Board staff.

10. **Concentration-vs-Time plots** - Throughout the CAP, for each Well/COC pair that has shown a verified release indication, the Discharger shall create and maintain a concentration-versus-time plot with the pair's concentration limit shown as a horizontal line on the plot. This line serves as the pair's remediation goal. The Discharger shall include these plots in the Landfill's Annual Summary Monitoring Report. This report shall identify which release-affected Well/COC pairs are responding well to the existing corrective action measures (i.e. they are trending down toward, or have reached their respective concentration limit) and shall identify all other release-affected Well/COC pairs as indicating a need to augment existing corrective action measures or propose additional corrective measure(s). At the request of the Executive Officer, the Discharger shall

propose, as part of the monitoring report for the next reporting period, revised corrective action measures that will provide positive remediation effects on all release-affected Well/COC pairs. The revised corrective action measures become effective immediately upon approval by the Executive Officer.

11. **Concentration limits after CAP completion** – After demonstrating completion of the CAP in accordance with Section C.21 of this Order, the Discharger shall propose concentration limits for COCs in accordance with Section B.7, above, with a time schedule, for review and approval by the Executive Officer.

12. **Data Analysis:**

    a. The Discharger shall analyze water samples from each monitoring well for the Monitoring Parameters and test the resulting data using one of the statistical or non-statistical methods under Title 27, §20415(e)(8) to evaluate a release from the Landfill.

    b. Monitoring Parameters that use statistical data analysis methods:

        i. For Well/Monitoring Parameter pairs that require the use of a statistical data analysis method, the Discharger shall use data analysis methods, meeting Title 27, §20415(e)(6-12) and approved by the Executive Officer. The data analysis method shall use a Pass 1-of-2 Retesting approach that involves taking the first sample at the very start of the reporting period with subsequent period retest sample, if needed, and that are developed to meet US EPA's Unified Guidance (2009), including validation of the method's statistical power by comparison to that agency's relevant Reference Power Curve, as therein described.

        ii. Monitoring Parameters subject to such testing include inorganic constituents such as pH, total dissolved solids (TDS), nitrate-nitrogen, chloride, or other constituents as approved.

    c. Monitoring Parameters that use non-statistical data analysis methods:

        i. VOCs and other organic constituents that are not naturally occurring in the background and that are detected less than 10 percent of the time as specified in Section B.4.a, above, shall use the California Non-statistical Data Analysis Method (CSNDAM) described in **Attachment F** of the MRP.

ii. All Well/Monitoring Parameter pairs in Tracking Status (verified release indication) shall use the Concentration-Versus-Time Plotting Method described in **Attachment F** of this MRP; and

iii. All Well/COC pairs that are monitored every 5 years (i.e. 5-year COC analysis) shall use the Upper 85th Percentile Non-statistical Data Analysis Method.

d. The Executive Officer may approve alternative monitoring parameters that meet the requirements of Title 27, §20380 et seq. The Executive Officer may also approve alternative statistical or non-statistical methods that meet the requirements of Title 27, §20415(e).

13. **Constituents of Concern (COCS)**: The Landfill is not equipped with a liner and a leachate collection and removal system (LCRS) that produces leachate. Therefore, COCs shall be monitored as follows:

a. Every 5 years, the Discharger shall monitor all COCs, which consist of Uninvolved Parameters or Appendix II constituents in **Table 5, Attachment E** and general minerals in **Table 6, Attachment E**, pursuant to Title 27, §20420(g). The analytical data shall be analyzed by using the Upper 85th Percentile Non-statistical Method provided in **Attachment F** of this MRP.

b. Background sampling for new constituents - For each newly detected COC that is added to the existing Monitoring Parameter list, the Discharger shall establish a reference background value by analyzing at least one sample quarterly from each background monitoring point for a period of at least 2 years. Once this reference set of background data is collected, the Discharger shall include it as a separate, identified item in the next monitoring report submittal. Existing background data for the newly identified COC may be substituted for additional background sampling with the approval of the Executive Officer.

14. Indication of a Landfill Release:

a. Exceedance of a Concentration Limit is a tentative indication of a release, unless the constituent is naturally occurring with concentrations exhibiting spatial/temporal variability due to natural geochemical conditions. If a release from the Landfill is tentatively indicated, the Re-Test Procedure, below, shall be carried out.

b. VOC release – The following criteria shall be used to evaluate a tentative indication of a VOC release:

i. Three or more VOCs exceed their laboratory MDLs in a groundwater sample; or
ii. One or more VOCs exceed their laboratory PQL or RL in a groundwater sample.

15. Re-test Procedure for a Tentative Release (a "Pass 1-of-2" Plan Testing)

a. In the event the Discharger concludes that a release has been tentatively indicated, the Discharger shall, by mid-period, collect a new sample for the constituent(s) that exceeded the concentration limit at each indicating monitoring point. The Discharger shall use a single re-test sampling approach. The re-test sample shall be taken at mid-monitoring period to provide an independent sample for the constituent that was exceeded. If a release is confirmed by the re-test, then the results exhibit a measurably significant indication of a release (i.e. failing the "Pass 1-of-2" Plan); otherwise, the original release indicated is nullified (i.e. passing the "Pass 1-of-2" Plan).

b. Re-tests shall be carried out only for the monitoring point(s) for which a release is tentatively indicated, and only for the constituent(s) which triggered the indication.

c. If the test results confirm the original indication of a release, the Discharger shall conclude that a release has been discovered and shall carry out the appropriate reporting requirements under Section C.14 of this Order.

d. If the release is confirmed, but is derived from an off-site source, then the Discharger shall submit an Optional Demonstration Report, required under Section C.16.b.iii of the Order.

C. GENERAL SITE MONITORING

1. All liquid waste containment systems, such as landfill gas condensate storage tanks, shall be inspected and evaluated at least monthly for their effectiveness in protecting both surface and groundwater. All deficiencies identified and the dates and types of corrective action taken shall be recorded in a permanent log. All deficiencies shall be documented for the record. The volume of liquids collected in the containment structures shall be recorded monthly. Liquid samples, such as gas condensate, shall be collected and analyzed for constituents specified in **Table 1A**, in accordance with the monitoring schedule in **Table 1B**.

2. Monthly, the Discharger shall inspect all WMUs and shall evaluate their effectiveness in achieving compliance with Sections C.4 and C.5 of the Order.

All areas of slope failure, differential settlement, fissuring, erosion, ponding, leachate staining, and seepage into or from the Landfill shall be identified, field-marked, and documented. In the event seepage is discovered, the location of each seep shall be mapped and a mitigation plan submitted for the approval of the Executive Officer. All findings shall be photographed for the record.

3. At a minimum, all run-on and runoff drainage control structures shall be inspected and evaluated monthly for their effectiveness in achieving compliance with Sections C.6 and C.7 of this Order. During dry weather conditions, the effectiveness of the drainage control system shall be evaluated on the basis of its conformance to the as-built drawings, or revised drawings, for the system. During wet weather, a post-storm inspection of the Landfill shall be conducted and reported as specified in **Table 1B**. All deficiencies shall be identified, recorded, and repaired.

4. An aerial or ground survey of the Landfill shall be performed in accordance with the monitoring schedule in **Table 1B**.

D. REPORTING

1. **Compliance monitoring reports** - The Discharger shall submit monitoring reports for the monitoring periods and reporting due dates specified in **Table 1B**. The Discharger may propose an alternate schedule and the Executive Officer may approve the proposal or require the Discharger to comply under an alternate monitoring and/or reporting schedules.

2. **Water Quality and General Site Monitoring reports** - The reports shall include at least the following information, in addition to the specific contents listed for each respective report:

    a. **Transmittal letter** - A letter summarizing the essential points in the report. This letter shall include a discussion of any violations or noncompliance items found since the last such report was submitted, and shall provide an update of planned and proposed actions taken for correcting those violations or noncompliance items;

    b. **Water Quality Monitoring Reports** – For groundwater monitoring and COC reports, a compliance evaluation summary containing at least:

        i. **Flow rate/direction** - For each monitored ground water body, a description and graphical presentation (e.g. arrow on a map) of the velocity and direction of ground water flow under/around the Unit, based upon water level elevations taken during the collection of the water quality samples;

ii. **Well Sampling Information** - For each monitoring well addressed by the report, a description of:

a) the method and time of water level measurement, and a description of the method of purging used before sampling to remove stagnant water in the well, pursuant to Title 27, §20415(e)(12)(B);
b) the type of pump or other device used and its vertical placement for sampling;
c) the sampling procedure (number and description of the samples, field blanks, travel blanks, and duplicate samples taken;
d) the type of containers and preservatives used;
e) the date and time of sampling;
f) the name of the person collecting the samples; and
g) any other observations made.

iii. **Laboratory data** - A copy of the laboratory analytical results shall be submitted in accordance with Section D.10, below. The laboratory analytical data in the report shall be summarized and presented in a tabular format. Statistical and non-statistical analyses of the analytical data and graphical plots shall be presented. An evaluation and interpretation of the data analyses shall also be included;

iv. **Map** - A site map showing the locations of all monitoring points and groundwater contours, to the greatest degree of accuracy possible; and

v. A discussion of any water sampling and monitoring activities that deviated from the sampling and quality assurance plans.

c. **General Site Monitoring Reports** - At a minimum, the following information shall be included in the reports:

i. **Landfill gas condensate collection system** - Monthly field inspection records and a summary as to the condition and performance of the system. The summary shall include a list of any deficiencies identified and the dates and types of corrective actions taken to achieve compliance with the requirements in this order. If corrective actions for identified deficiencies could not be implemented by the end of the monitoring period, the Discharger

shall provide the reason(s) for noncompliance and a time schedule for implementing the corrective actions.

ii. **Management of Liquids** - A summary of the total volume(s), on a monthly basis, of liquid waste collected at the Landfill, and how the liquids are managed.

iii. **Drainage and erosion control systems** — The following information shall be submitted in for each reporting period:

a) Field inspection records of the drainage and erosion control system to achieve compliance with Section C.4 of this Order; and

b) A summary of the adequacy and effectiveness of the site drainage control system to collect and divert the calculated volume of precipitation and peak flows resulting from a 100-year, 24-hour frequency storm.

iv. **Closure cover** - Any cover deficiencies and mitigation activities shall be discussed in the report.

v. **Map** - A site map showing the new and existing drainage and erosion control measures implemented, including the types and completion dates of maintenance activities performed, and the target completion dates of ongoing site maintenance activities.

3. Landfill Gas and Gas Condensate Monitoring Report

a. October landfill gas and gas condensate sampling results - The Discharger shall report to the Executive Officer, by no later than April 30 of each year, the analytical results of the landfill gas and gas condensate samples taken the previous October;

b. April landfill gas and gas condensate retest results - If the annual landfill gas and/or gas condensate samples taken in October identify constituents that are not on the Monitoring Parameter list (see **Table 3**), the Discharger shall collect and analyze retest landfill gas and/or gas condensate samples in April. The retest samples shall be analyzed only for the constituents detected in the October sampling event. If an April retest is carried out, the Discharger shall include a discussion and the retest results in the monitoring report for the qualifying reporting period. This report must identify any Appendix II VOC constituents that must be added to the Landfill's Monitoring Parameter list as a result of having been detected in

both the previous calendar year's October samples and confirmed in the April retest samples (as well as degradation by-products of confirmed constituents). The report shall also include an updated Monitoring Parameter list.

4. **Annual Summary Report** - The Discharger shall submit an annual summary report, covering the previous monitoring year (April 1 of the previous year through March 31 of the following year), to the Executive Officer. The annual summary report is due on April 30. This report may be combined with the water quality monitoring report period ending March 31, and shall include, at least, the following information:

    a. **Graphical Presentation** - Groundwater analytical data shall be presented in accordance with Title 27, §20415(e)(14). The concentration-versus-time plots (including the concentration limit, plotted as an identified horizontal line) for all release-affected Well/Monitoring Parameter pairs shall be included in the compliance record discussion in Section D.4.c, below.

    b. **Tables** - All monitoring analytical data obtained for the qualified monitoring year shall be presented in tabular form in the annual summary report. The tables shall include the following:

        i. **Concentration limit table** - Each Well/COC pair's concentration limit, together with a declaration of the type (inter-well vs. intra-well) and the name of the well from which the data was drawn. Each datum shall include a date (when it was taken) and, if less than the PQL, include its MDL and PQL. For trace values, include a concentration estimate.

        ii. **Data analysis method table** - A table indicating those Well/COC pairs that use each listed data analysis method. For statistical methods, indicate the retesting approach (e.g. Pass 1-of-2 Plan) and the parameter settings used. For standardized (assigned) non-statistical methods, merely name the method.

        iii. **Retesting table** – A table showing each retest done that monitoring year for COC(s) for which a tentative indication of a release invoked the retesting approach.

    c. **Compliance record discussion** - A comprehensive discussion of the compliance record, and of any corrective actions the Discharger has taken or planned which may be needed to bring the Landfill into full compliance with the Landfill's waste discharge requirements. This discussion shall evaluate whether the existing corrective action measures are bringing all

release-affected Well/Monitoring Parameter pairs back into compliance with their respective concentration limits, and shall include the concentration-versus-time plots for each such release-affected Well/Monitoring Parameter pair.

d. **Summary of changes** - A written summary of monitoring results and monitoring (and control) system(s), indicating any changes made or observed since the previous annual report.

5. **Site winterization plan and topographical map** - Annually, by October 31, a site winterization plan shall be submitted. The winterization plan shall include, but not be limited to, the following information:

   a. An 11"x17" site map indicating the locations of new and existing components of the site drainage and erosion control system, including hardscape structures and other permanent and annual/seasonal erosion control systems, sediment control systems and storm water treatment best management practices implemented for the upcoming rainy season; and

   b. An up-to-date aerial topographical map of the Landfill.

   This report may be combined with the general site monitoring report due October 31 for submittal.

6. **COC Report** - The Discharger shall submit the 5-year COC report in accordance with the schedule in **Table 1B**.

7. **Reporting Schedule** - The Discharger shall submit the reports in accordance with the reporting due dates in **Table 1B**.

8. **Signature** - All reports shall be signed by a responsible officer or a duly authorized representative of the Discharger and shall be submitted under penalty of perjury.

9. **Electronic submittal of information** - All reports shall be submitted in an electronic format, with text, tables, figures, laboratory analytical data, graphs, and appendices. In accordance with Electronic Reporting Regulations (Chapter 30, Division 3 of Title 23 & Division 3 of Title 27), all reports, well data, and lab data (in Electronic Deliverable Format) must be uploaded to the State Water Resources Control Board (State Water Board) Geotracker database.

10. All reports required in this MRP are required pursuant to California Water Code §13267. Any person affected by this action of the Regional Board may petition the State Water Board to review the action in accordance with §13320 of the

California Water Code and Title 23, California Code of Regulations, §2050. The petition must be received by the State Water Board within 30 days of the date of this Order. Copies of the laws and regulations applicable to filing petitions will be provided upon request.

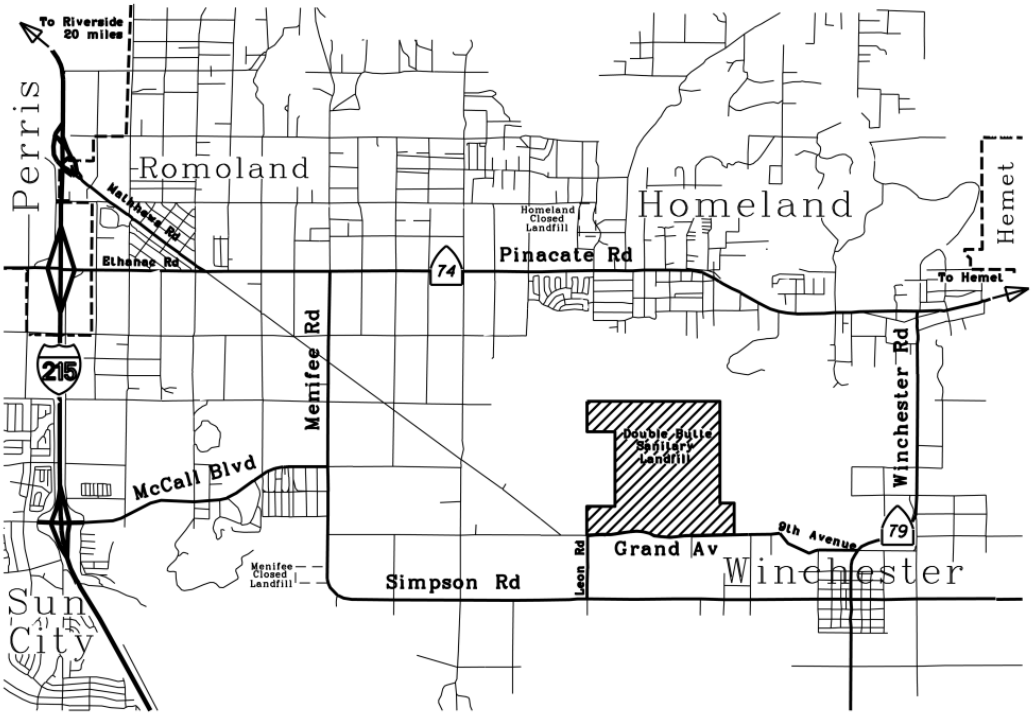
I, Hope A. Smythe, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, Santa Ana Region.

_____
Hope A. Smythe
Executive Officer

June 19, 2020

ATTACHMENT A – VICINITY MAP

Double Butte Sanitary Landfill
Vicinity Map



Legend

- Paved Access Roads
- Freeway (Hwy I-215)
- City Boundary
- Sanitary Landfill

0 6000′ 12000′

Scale

N

RIVERSIDE COUNTY
DEPARTMENT OF
WASTE RESOURCES

Double Butte (Closed) Sanitary Landfill

Vicinity Map

Figure 2

File Directory: Waste_1 / environ /sites /double /dbvicinity.dgn

Drawing No. 1

ATTACHMENT B – DEFINITIONS

"40 CFR §258" means the regulations under Part 258 of Title 40 of the Code of Federal Regulations that apply to municipal solid waste landfills.

"Affected Medium" means any natural medium that consists of or contains waters of the state (e.g., ground water, surface water, or the unsaturated zone) that has been affected by a release from a waste management unit.

"Affected Persons" means all people who own, or reside upon, land outside the facility boundary that is underlain by any portion of the release from the Landfill. Under Title 40 of the Code of Federal Regulations section 258.55(g)(l)(iii), the discharger must keep an up-to-date list of all such people and must assure that they are invited to the discussion of proposed corrective action measures, pursuant to Title 40 of the code of Federal Regulations section 258.56(d).

"Appendix I Constituents" means the suite of 47 volatile organic constituents and 17 metals used as the default monitoring parameter list in 40 CFR §258.

"Appendix II Constituents" means the suite of 213 hazardous constituents used as the default constituent of concern list in 40 CFR §258.

"Background" means the concentrations or measures of constituents or indicator parameters in water or soil that has not been affected by waste constituents or leachate from the waste management unit being monitored.

"Background Monitoring Point" means a well, device, or location specified in the waste discharge requirements at which monitoring for background water quality or background soil quality is conducted.

"Composite retest" means a particular means of validating a preliminary indication of a release, for a given compliance Well/MPar pair, whereby the discharger applies an approved data analysis method to two new samples for that Well/MPar pair. The retest validates the preliminary indication if either or both of the retest samples triggers a measurably significant increase indication. The scope of the retest, at any given compliance well, is limited to only those Monitoring Parameters that gave a preliminary indication at that monitoring point. However, all the data obtained from the initial sampling event is considered as part of the comprehensive statistical analysis for subject monitoring period.

"Title 27" means the State Water Resources Control Board's regulations, in Division 2 of Title 27 of the California Code of Regulations, applicable to the discharge to land of waste that is not hazardous waste.

"Concentration Limit" is a part of the Landfill's Water Standard and means the reference background data set, or reference concentration value, for a given constituent against which one compares current compliance well data to identify, in detection mode, the

arrival of the release at a given well and to identify, in tracking mode, if the corrective action measures are bringing the Landfill back into compliance with the Water Standard.

"Constituents of Concern (COCs)" is a part of the Landfill's Water Quality Protection Standard and means the list of constituents that could be released from the Landfill, including the foreseeable breakdown products of all such constituents. For the ground water medium at a municipal solid waste landfill, this list must include all Appendix II constituents (or Uninvolved Parameters) and general minerals. A constituent on this list becomes a Monitoring Parameter only after being detected (at trace level or above) and then verified by a well specific retest in a periodic scan of compliance wells affected by the release.

“CAP” means a Corrective Action Program that implements the requirements under Title 27 of the California Code of Regulations §20430.

"Detect" when applied to a scan of leachate or ground water, means that the constituent for which the scan is conducted shows up at trace level or higher. For Constituents of Concern and Monitoring Parameters that are rarely detected in background, the term means analyses done using a laboratory analytical method that complies with Title 27 of the California Code of Regulations section 20415(e)(7).

"Detection mode" for a given compliance well/Monitoring (well/MPar) pair, means a state in which one tests for a measurably significant increase, for that Monitoring Parameter at that well, using an appropriate statistical or non-statistical data analysis method. Once that well/MPar pair exhibits a measurably significant increase (including an initial indication verified by a discrete retest), it is monitored, thereafter, in "tracking mode" until the completion of the proof period, following successful completion of corrective action.

Double Quantification (DQ) rule is a quasi-statistical rule, defined in the 2009 USEPA Unified Guidance for Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, to address infrequently detected constituents (i.e. constituents detected above the reporting limit in 10% or less of the background data), whereby a confirmed exceedance is registered if a Well/MPar pair in the infrequently detected constituent group exhibits quantified measurements (i.e. at or above the reporting limit) in two consecutive sample events (i.e. the initial sample event and the subsequent resample event).

"DMP" means a Detection Monitoring Program that implements the State Water Resources Control Board's requirements, under Title 27 of the California Code of Regulations §20420.

"EMP" means an Evaluation Monitoring Program that implements the requirements under Title 27 of the California Code of Regulations §20425. This state program constitutes a stepping stone to a Corrective Action Program, in response to the Landfill's

having exhibited a measurably significant increase of a release or to its having exhibited physical evidence of a release [see Title 27, §20385(a)(2 and 3)].

"Indicator Parameters" in this Order means a suite of parameters that are considered capable of providing reliable indication of a release from a landfill.

"Inter-well comparison" means a type of statistical or non-statistical data analysis, applied to a given detection mode compliance Well/MPar pair, in which one compares current concentration data, for that Monitoring Parameter and well, with a suite of background data from the appropriate upgradient well(s) to determine if that Monitoring Parameter has produced a measurably significant increase at that well. Generally speaking, the use of upgradient background data tends to produce higher false-positive and false-negative rates than the intra-well comparison approach, but is appropriate in those cases where it is not feasible to validate that a compliance well's own historical data reflects water quality in the absence of a release.

"Intra-well comparison" means a type of statistical or non-statistical data analysis, applied to a given detection mode compliance Well/MPar pair, in which one compares current concentration data, for that Monitoring Parameter, with a suite of background data consisting of selected historical data from that same· well to determine if that Monitoring Parameter has produced a measurably significant increase at that well. Typically, the use of a compliance well's own historical data, for a Monitoring Parameter, provides better statistical power (to identify a real release and to avoid producing false-positive indications) than does the inter-well comparison approach, but only in a case where it is reasonable to assume that the compliance well's own historical data does not reflect the presence of a release for that Monitoring Parameter.

“LFG” means landfill gas, including any Volatile Organic Compounds.

"MRP" means the Monitoring and Reporting Program that is an attachment to the Waste Discharge Requirements (or other order) and that is incorporated by reference by the Waste Discharge Requirements.

"Matrix effect" means any increase in the Method Detection Limit or Practical Quantitation Limit for a given constituent as a result of the presence of other constituents, either of natural origin or introduced through a release, that are present in the sample of water or soil-pore gas being analyzed.

"Measurably significant increase" means a condition in which an appropriate data analysis method shows an initial indication of a release, for a given detection mode compliance well/MPar pair, that is verified by a discrete retest (for that well and Monitoring Parameter).

"Method Detection Limit (MDL)" means the minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte's concentration is

greater than zero, as defined in Title 40 of the Code of Federal Regulations Part 136, Appendix B.

"Monitored media" means those water and/or gas-bearing media (if applicable) that are monitored pursuant to a monitoring and reporting program. The monitored media may include: groundwater in the uppermost aquifer or in any other portion of the zone of saturation [section 20164 of Title 27 of the California Code of Regulations], in which it would be reasonable to anticipate that waste constituents migrating from the Landfill could be detected, and in any perched zones underlying the Landfill, any bodies of surface water that could be measurably affected by a release, soil-pore liquid beneath and/or adjacent to the Landfill, and oil-pore gas beneath and/or adjacent to the Landfill.

“Monitored Natural Attenuation” is a remedial measure that relies on natural processes to decrease or “attenuate” concentrations of contaminants in soil and groundwater. Monitoring typically involves collecting soil and groundwater samples to analyze them for the presence of contaminants and other site characteristics. The entire process is called “monitored natural attenuation” or “MNA.” Regular monitoring is necessary to ensure that MNA continues to work.

"Monitoring Parameter (MPar)" is a part of the Landfill's Water Quality Protection Standard and means a list consisting of those constituents that are likely to be present or present at a detectable level in ground or surface water. This is the subset of the Constituents of Concern that is subject to testing for a measurably significant increase, in detection mode, at all compliance wells. For ground water, at a landfill with a functioning Leachate Collection and Removal System, this suite includes all Appendix II constituents that have been detected (at trace level or above) and verified in leachate and, subsequently, have been detected (at trace level or above) and verified in a Constituents of Concern scan of ground water at compliance wells affected by the release. For ground water, at a landfill without a functioning Leachate Collection and Removal System, this suite includes all Appendix II constituents and general minerals that have been detected and verified in a Constituents of Concern scan of ground water at any compliance well affected by the release.

"Monitoring Point or Well" for any given monitored medium (surface water, ground water, or the unsaturated zone), means a location, including any installed access device (e.g., well or lysimeter), that is named in the Monitoring and Reporting Program as a place where the discharger monitors that medium: 1) to detect the arrival of the release front for each Monitoring Parameter that is in detection mode at that location; 2) to detect changes in the concentration of each Monitoring Parameter that is in tracking mode at that location; and 3) in case where the location that is in tracking mode for most Monitoring Parameters that are involved in the release, to detect the presence, at trace level or above, of any Constituents of Concern that have not previously been detected in that medium (Constituents of Concern newly detected and verified in that medium become Monitoring Parameters for that medium).

"MSW landfill" means any landfill that is subject to any portion of the federal regulations under Title 40 of the Code of Federal Regulations Part 258 by virtue of having received municipal solid waste (household waste) at any time and having received any waste after October 9, 1991.

"Point of compliance (POC)" is, for the ground water medium, a part of the Landfill's Water Quality Protection Standard and means a conceptual vertical surface that is located, in map view, along the hydraulically downgradient limit of waste placement at the Landfill and that extends downward through the uppermost aquifer underlying the Unit. The federal municipal solid waste regulations require one or more ground water monitoring points along this vertical surface to monitor the quality of ground water passing it (see Title 40 of the Code of Federal Regulations section 258.51), whereas the Regional Water Quality Control Board will name other ground water monitoring points (not along this vertical surface) as needed to provide the earliest possible detection and measurement of a release [see Title 27 of the California Code of Regulations section 20415(b)(l)].

"Practical Quantitation Limit (PQL)" means the value established as a target value by the United States Environmental Protection Agency that is the lowest concentration of a substance that can be consistently determined within +/- 20% of the true concentration by 75% of the laboratories tested in a performance evaluation study. Alternatively, if performance data are not available, the Practical Quantitation Limit for carcinogens is the Method Detection Limit multiplied by 5, and for non-carcinogens is the Method Detection Limit multiplied by 10. These estimated PQLs are listed in Appendix II to Title 40 of the Code of Federal Regulations Part 258. Generally, these are target values that may not reflect the constraints of matrix effects; therefore, the Regional Water Quality Control Board requires the discharger to keep an up-to-date listing of the applicable laboratory-specific PQL and MDL estimates for each analyte on the Constituent of Concern list.

"Release" means the three-dimensional portion of the monitored medium (groundwater, surface water, or the unsaturated zone) comprised of all locations therein that are affected by one or more Monitoring Parameters that have migrated from the Landfill to such an extent that a properly constructed monitoring point, at that location, would trigger a measurably significant increase over the applicable concentration limit, using an appropriate data analysis method meeting the requirements of Title 27 of the California Code of Regulations section 20415(e)(9) and a background data set sample size of 16 or more data points.

"Reporting period" means the duration separating the submittal of a given type of monitoring report from the time the next iteration of that report is scheduled for submittal.

"Retest" when applied to a scan to detect the presence of an appropriate list of analytes in leachate, landfill gas, or ground water (at an affected monitoring point), means taking

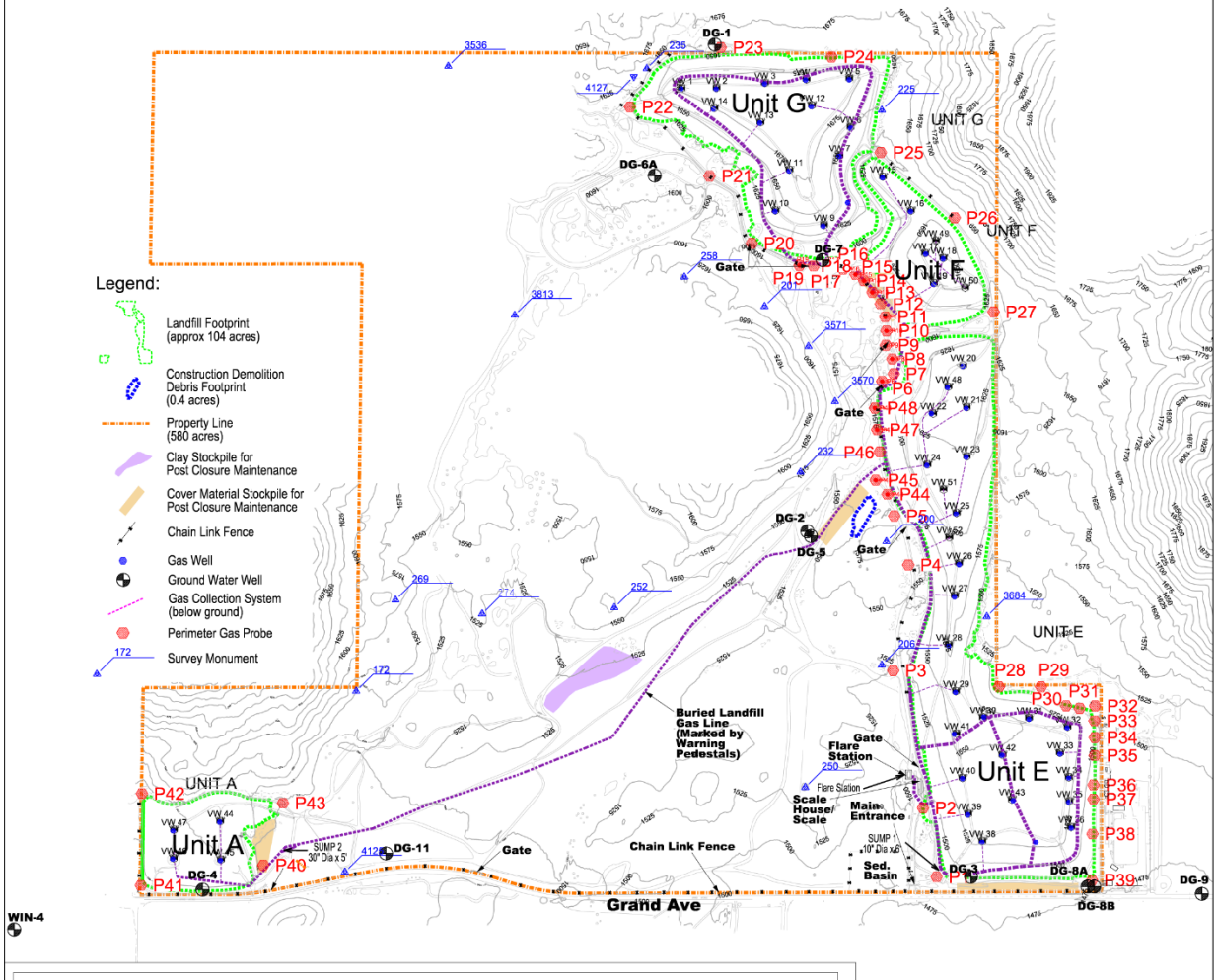
a single additional sample from the indicating medium (or, for ground water, the indicating monitoring point) to determine whether the initial detection, for that analyte, is valid. When applied to the six-monthly monitoring effort for a given compliance Well/MPar pair in detection mode, see "composite retest."

"Sample size" for a given compliance Well/MPar pair in detection mode, means the number of data points used to represent the variability of the background population or to represent the present compliance status of the Monitoring Parameter at that well, when applying an appropriate data analysis method.

"Scan" means a determination as to whether any of a given list of constituents are detectable (at the trace level or above) in the monitored medium (typically leachate, ground water, and landfill gas condensate). The term includes both the initial measurement and, for a newly detected constituent, the results of the single retest sample. To identify a newly detected constituent, the constituent must be detected (at trace level or above) and then verified by being detected in the single sample retest.

ATTACHMENT C-1 – SITE MAP

Double Butte Sanitary Landfill
Overall Site Map



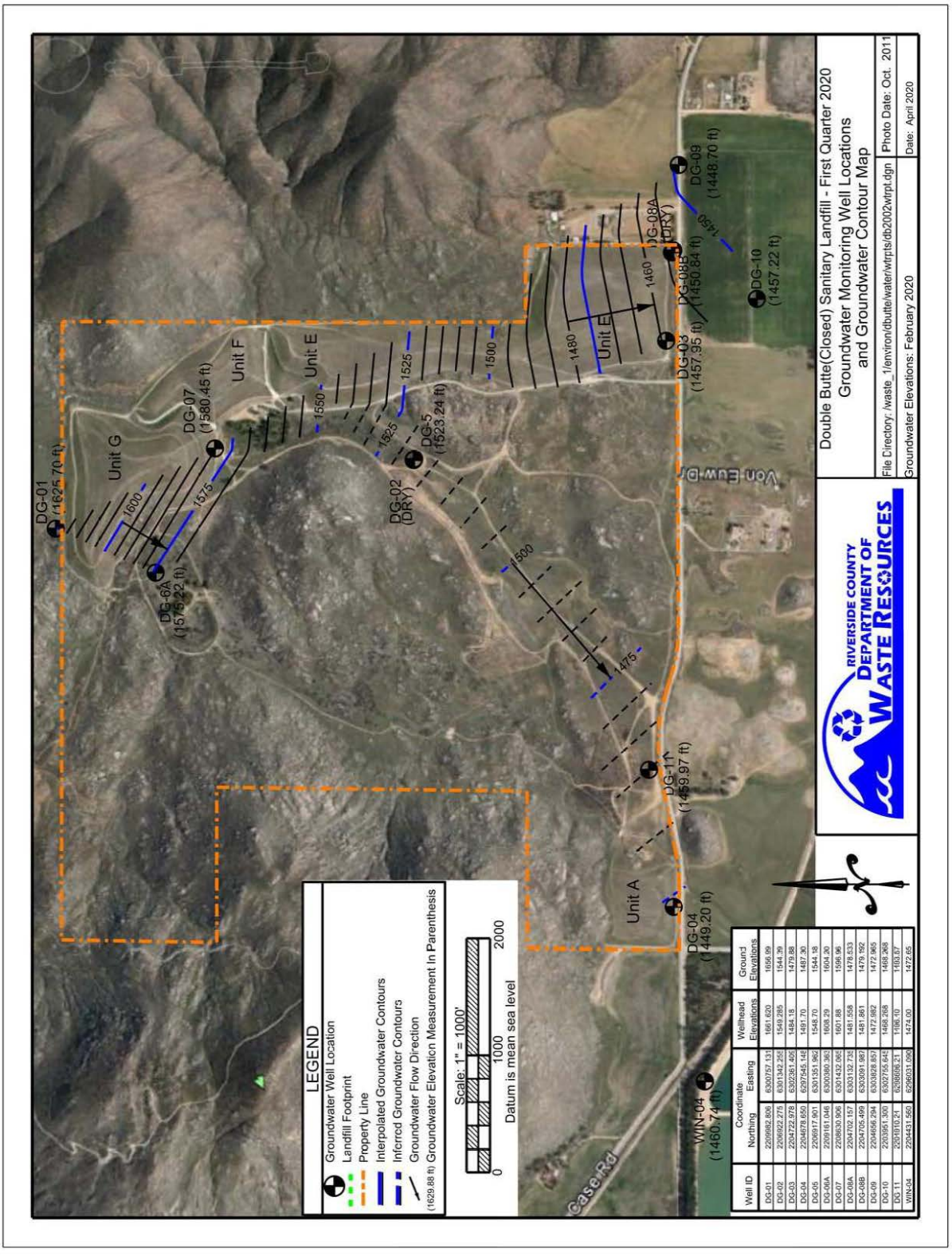
RIVERSIDE COUNTY DEPARTMENT OF WASTE RESOURCES
Hans Kernkamp, General Manager-Chief Engineer

Double Butte Sanitary Landfill
Final Post-Closure Maintenance Plan

Overall Site Map — Figure 4

Directory: engr/sites/double/permitting/JTD1/figures/		Date: March 18, 2020
File: double butte overall site map Mar 2020.dgn	Drawn by: SNL	Scale : 1"=1000'

ATTACHMENT C-2: GROUNDWATER MONITORING NETWORK



Well ID	Coordinate Northing	Coordinate Easting	Wellhead Elevations	Ground Elevations
DG-01	2209882.806	6300757.131	1661.620	1656.99
DG-02	2206922.275	6301342.252	1549.285	1544.29
DG-03	2204722.978	6302361.405	1484.18	1479.88
DG-04	2204878.650	6297545.148	1491.70	1487.30
DG-05	2206917.901	6301351.962	1548.70	1544.18
DG-06A	2209161.046	6300380.363	1608.29	1604.20
DG-07	2208630.906	6301432.065	1601.88	1596.96
DG-08A	2204702.157	6303132.735	1481.558	1478.533
DG-08B	2204705.499	6303091.987	1481.861	1479.552
DG-09	2204656.294	6303828.853	1472.982	1472.965
DG-10	2203951.300	6302755.645	1468.268	1468.268
DG-11	2201910.21	6304606.21	1186.10	1183.57
WIN-04	2204431.569	6296031.099	1474.00	1472.65

ATTACHMENT D: PRIVATELY-OWNED OFFSITE MONITORING WELLS

ATTACHMENT E

TABLE 1A
MONITORING PROGRAM

Task Description	Constituents	Monitoring Frequency
Detection Monitoring Program	Monitoring Parameters (Table 3)	Semi-annually
Corrective Action Monitoring Program	Monitoring Parameters (Table 3)	Semi-annually
COC Analysis	Appendix II constituents and General Minerals	Once every 5 years
Landfill gas condensate monitoring	Appendix II Constituents	Annually
Vadose zone monitoring (perimeter gas probes)	Methane (field), total gaseous non- methane organic hydrocarbons (TGNMO), and the VOCs specified by SCAQMD Rule 1150.1	Monthly in the field and quarterly in the laboratory (per SCAQMD Rule 1150.1)
Liquid waste containment system inspection	NA	Monthly
Drainage control system inspection	NA	Monthly
Post-storm inspection	NA	After each qualifying storm event that produces 1 inch or more of rain within a 24-hour period
Aerial ground survey	NA	Once every 5 years

TABLE 1B
MONITORING AND REPORTING SCHEDULE

Task Description	Monitoring Period	Report Due Date
Post-storm inspection	After each qualifying storm event that produces 1 inch or more of rain within a 24-hour period	Within 2 business days after inspection
Quarterly groundwater level measurement: **first quarter**	October 1 – December 31	April 30 of each year
Quarterly groundwater level measurement: **second quarter**	January 1 – March 31	April 30 of each year
Quarterly groundwater level measurement: **third quarter**	April 1 – June 30	October 31 of each year
Quarterly groundwater level measurement: **fourth quarter**	July 1 – September 30	October 31 of each year
Semi-annual water quality and general site monitoring: **first half of year**	October 1 – March 31 the following year	April 30 of each year
Semi-annual water quality and general site monitoring: **second half of year**	April 1 – September 30	October 31 of each year
Annual October landfill gas and gas condensate analysis	October 1 – October 31	April 30 of the following year
April landfill gas and gas condensate retesting	April 1 – April 30	October 31 of each year
Landfill Winterization Plan	By October 1 of each year	October 31 of each year
Landfill survey/topographic map	By October 1 every 5 year	October 31, 2022 and every 5th year thereafter
Annual summary	April 1 of previous year – March 31	April 30 of each year
5-year COC analysis	July 1 – September 30, 2021	October 31, 2025 and every fifth year thereafter, alternately in the Spring (April 30) and Fall (October 31)
5-year COC analysis	January 1 – March 31	April 30, 2030

TABLE 2
WATER QUALITY MONITORING POINTS

Media Monitored	Monitoring Point
Groundwater: background wells	DG-1
Groundwater: point of compliance wells	DG-2, DG-3, DG-4, DG-5, DG-6A, DG-7, DG-8A and 8B
Groundwater: corrective action monitoring wells	DG-3, DG-5, DG-7, DG-8A and 8B, DG-11
Groundwater: detection monitoring wells	DG-9, DG-10, DG-11, WIN-4
Landfill Gas Condensate	Condensate Tank (at the Flare Station)
Unsaturated Zone	Landfill gas perimeter monitoring probes

TABLE 3
MONITORING PARAMETERS

Inorganic Parameters	
Bicarbonate	Nitrate as nitrogen
Calcium	Potassium
Chloride	Sodium
Iron (II)	Total Dissolved Solids
Magnesium	Total Organic Carbon
Organic Parameters	
47 Appendix I Organic Constituents	**Appendix II Constituents:**
	1,4-Dioxane
	Bis(2-ethylhexyl)phthalate

TABLE 4: APPENDIX I CONSTITUENTS

Inorganic Constituents	
Antimony	Lead
Arsenic	Nickel
Barium	Selenium
Beryllium	Silver
Cadmium	Thallium
Chromium	Vanadium
Cobalt	Zinc
Copper	
Organic Constituents	
Acetone	trans-1,2-Dichloropropene
Acrylonitrile	Ethylbenzene
Benzene	2-Hexanone; Methyl butyl ketone
Bromochloromethane	Methyl bromide; Bromomethane
Bromodichloromethane	Methyl chloride; Chloromethane
Bromoform; Tribromomethane	Methylene bromide; Dibromomethane
Carbon disulfide	Methylene chloride; Dichloromethane
Carbon tetrachloride	Methyl ethyl ketone; MEK; 2-Butanone
Chlorobenzene	Methyl iodide; Iodomethane
Chloroethane; Ethyl chloride	4-Methyl-2-pentanone; Methyl isobutyl ketone
Chloroform; Trichloromethane	Styrene
Dibromochloromethane; Chlorodibromomethane	1,1,1,2-Tetrachloroethane
1,2-Dibromo-3-chloropropane; DBCP	1,1,2,2-Tetrachloroethane
1,2-Dibromoethane; Ethylene dibromide; EDB	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene
o-Dichlorobenzene; 1,2-Dichlorobenzene	Toluene
p-Dichlorobenzene; 1,4-Dichlorobenzene	1,1,1-Trichloroethane; Methylchloroform
trans-1,4-Dichloro-2-butene	1,1,2-Trichloroethane
1,1-Dichloroethane; Ethylidene dichloride	Trichloroethylene; Trichloroethene
1,2-Dichloroethane; Ethylene dichloride	Trichlorofluoromethane; CFC-11
1,1-Dichloroethylene; 1,1-Dichloroethane; Vinylidene chloride	1,2,3-Trichloropropane
cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene	Vinyl acetate
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	Vinyl chloride
1,2-Dichloropropane; Propylene dichloride	Xylenes
cis-1,3-Dichloro propene	

TABLE 5
APPENDIX II CONSTITUENTS

Acenaphthene	Carbon tetrachloride
Acenaphthylene	Chlordane
Acetone	p-Chloroaniline
Acetonitrile; Methyl cyanide	Chlorobenzene
Acetophenone	Chlorobenzilate
2-Acetylaminofluorene; 2-AAF	p-Chloro-m-cresol; 4-Chloro-3-methylphenol
Acrolein	Chloroethane; Ethyl chloride
Acrylonitrile	Chloroform; Trichloromethane
Aldrin	2-Chloronaphthalene
Allyl chloride	2-Chlorophenol
4-Aminobiphenyl	4-Chlorophenyl phenyl ether
Anthracene	Chloroprene
Antimony (total)	Chromium (total)
Arsenic (total)	Chrysene
Barium (total)	Cobalt (total)
Benzene	Copper (total)
Benzo[a] anthracene; Benzanthracene	m-Cresol; 3-methylphenol
Benzo[b] fluoranthene	o-Cresol; 2-methylphenol
Benzo[k] fluoranthene	p-Cresol; 4-methylphenol
Benzo[ghi] perylene	Cyanide
Benzo[al] pyrene	2,4-D; 2,4-Dichlorophenoxyacetic acid
Benzyl alcohol	4,4-DDD
Beryllium (total)	4.4-DDE
alpha-BHC	4,4-DDT
beta-BHC	Diallate
delta-BHC	Dibenz [a,h] anthracene
gamma-BHC; Lindane	Dibenzofuran
Bis(2-chloroethoxy) methane	Dibromochloromethane; Chlorodibromomethane
Bis(2-chloroethyl) ether; Dichloroethyl ether	1,2-Dibromo-3-chloropropane; DBCP
Bis(2-chloro-1-methylethyl) ether; 2,2-Dichlorodiisopropyl ether; DCIP	1,2-Dibromoethane; Ethylene dibromide; EDB
	Di-n-butyl phthalate
Bis(2-ethylhexyl) phthalate	o-Dichlorobenzene; 1,2-Dichlorobenzene
Bromochloromethane; Chlorobromomethane Bromodichloromethane; Dibromochloromethane	m-Dichlorobenzene; 1,3-Dichlorobenzene
	p-Dichlorobenzene; 1,4-Dichlorobenzene
Bromoform; Tribromomethane	3,3-Dichlorobenzidine
4-Bromophenyl phenyl ether	trans-1,4-Dichloro-2-butene
Butyl benzyl phthalate; Benzyl butyl phthalate	Dichlorodifluoromethane; CFC-12
Cadmium (total)	1,1-Dichloroethane; Ethyldidene chloride
Carbon disulfide	cis-1,2-Dichloroethylene; cis-1,2-Dichloroethene

TABLE 5 (cont'd)
APPENDIX II CONSTITUENTS

1,2-Dichloroethane; Ethylene dichloride	Fluorene
1,1-Dichloroethylene; 1,1-Dichloroethene; Vinylidene chloride	Heptachlor
trans-1,2-Dichloroethylene; trans-1,2-Dichloroethene	Heptachlor epoxide
2,4-Dichlorophenol	Hexachlorobenzene
2,6-Dichlorophenol	Hexachlorobutadiene
1,2-Dichloropropane; Propylene dichloride	Hexachlorocyclopentadiene
1,3-Dichloropropane; Trimethylene dichloride	Hexachloroethane
2,2-Dichloropropane; Isopropylidene chloride	Hexachloropropene
1,1-Dichloropropene	2-Hexanone; Methyl butyl ketone
cis-1,3-Dichloropropene	Indeno (1,2,3-cd) pyrene
trans-1,3-Dichloropropene	Isobutyl alcohol
Dieldrin	Isodrin
Diethyl phthalate	Isophorone
0,0-Diethyl 0-2-pyrazinyl phosphorothioate; Thionazin Dimethoate	Isosafrole
p-(Dimethylamino)azobenzene	Kepone
7,12-Dimethylbenz(a)anthracene	Lead (total)
3,3-Dimethylbenzidine	Mercury (total)
2,4-Dimethylphenol; m-Xylenol	Methacrylonitrile
Dimethyl phthalate	Methapyrilene
m-Dinitrobenzene	Methoxychlor
4,6-Dinitro-o-cresol; 4,6-Dinitro-2-methylphenol	Methyl bromide; Bromomethane
2,4-Dinitrophenol	Methyl chloride; Chloromethane
2,4-Dinitrotoluene	3-Methylcholanthrene
2,6-Dinitrotoluene	Methyl ethyl ketone; MEK; 2-Butanone
Dinoseb; DNBP; 2-sec-Butyl-4,6-dinitrophenol	Methyl iodide; Iodomethane
Di-n-octyl phthalate	Methyl methacrylate
Diphenylamine	Methyl methanesulfonate
Disulfoton	2-Methylnaphthalene
Endosulfan I	Methyl parathion; Parathion methyl
Endosulfan II	4-Methyl-2-pentanone; Methyl isobutyl ketone
Endosulfan sulfate	Methylene bromide; Dibromomethane
Endrin	Methylene chloride; Dichloromethane
Endrin aldehyde	Naphthalene
Ethylbenzene	1,4-Naphthoquinone
Ethyl methacrylate	1-Napthylamine
Ethyl methanesulfonate	2-Napthylamine
Famphur	Nickel (total)
Fluoranthene	o-Nitroaniline; 2-Nitroaniline

TABLE 5 (cont'd)
APPENDIX II CONSTITUENTS

m-Nitroaniline; 3-Nitroaniline	Silver (total) Silvex; 2,4,5-TP
p-Nitroaniline; 4-Nitroaniline	Styrene
Nitrobenzene	Sulfide
o-Nitrophenol; 2-Nitrophenol	2,4,5-T; 2,4,5-Trichlorophenoxyacetic acid
p-Nitrophenol; 4-Nitrophenol	1,2,4,5-Tetrachlorobenzene
N-Nitrosodi-n-butylamine	1,1,1,2-Tetrachloroethane
N-Nitrosodiethylamine	1,1,2,2-Tetrachloroethane
N-Nitrosodimethylamine	Tetrachloroethylene; Tetrachloroethene; Perchloroethylene 2,3,4,6-Tetrachlorophenol
N-Nitrosodiphethalamine	Thallium (total)
N-Nitrosodipropylamine; N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine	Tin (total)
N-Nitrosomethylethalamine	Toluene
N-Nitrosopiperidine	o-Toluidine
N-Nitrosopyrrolidine	Toxaphene
5-Nitro-o-toluidine	1,2,4-Trichlorobenzene
Parathion	1,1,1-Trichloroethane; Methylchloroform
Pentachlorobenzene	1,1,2-Trichloroethane
Pentachloronitrobenzene	Trichloroethylene; Trichloroethene
Pentachlorophenol	Trichlorofluoromethane; CFC-11
Phenacetin	2,4,5-Trichlorophenol
Phenanthrene	2,4,6-Trichlorophenol
Phenol	1,2,3-Trichloropropane
p-Phenylenediamine	0,0,0-Triethyl phosphorothioate
Phorate	sym-Trinitrobenzene
Polychlorinated biphenyls; PCBs; Aroclors	Vanadium (total)
Pronamide	Vinyl acetate
Propionitrile; Ethyl cyanide	Vinyl chloride; Chloroethene
Pyrene	Xylenes (total)
Safrole	Zinc (total)
Selenium (total)	

TABLE 6
GENERAL MINERALS

Total Hardness	Specific Conductance (Electrical Conductivity - EC)
Bicarbonate (HCO_3)	pH
Carbonate ($CaCO_3$)	Total Dissolved Solids
Total Alkalinity	Chemical Oxygen Demand
Total Cations	Phenols
Total Anions	Total Organic Carbon
Hydroxide (OH)	Total Organic Halogens
Chloride (Cl)	Calcium (Ca)
Fluoride (F)	Magnesium (Mg)
Nitrate (NO_3)	Manganese (Mn)
Sulfate (SO_4)	Potassium (K)
Phosphate (PO_4)	Sodium (Na)
Total Phosphorus	Iron (Fe)
Boron (B)	Zinc (Zn)

TABLE 7
CONCENTRATION LIMITS

Constituent	California Drinking Water Maximum Contaminant Level (MCL)	California Drinking Water Notification Level (NL)	Laboratory Practical Quantitation Limit[1] (PQL)	Concentration Limit Greater Than Background
1,4-Dioxane			1 µg/L	1 µg/L
2-Butanone (methyl ethyl ketone)			10 µg/L	10 µg/L
2-Hexanone			10 µg/L	10 µg/L
4,4'-DDD			0.0050 µg/L	0.0050 µg/L
Acetone			10 µg/L	10 µg/L
Acetonitrile			10 µg/L	10 µg/L
Acetophenone			10 µg/L	10 µg/L
Alkalinity, Total			4.1 mg/l	4.1 mg/l
Anions, Total			0.10 mg/l	0.10 mg/l
Antimony, Total	0.006 mg/L		0.004 mg/L	0.006 mg/L
Arsenic, Total	0.05 mg/L		0.004 mg/L	0.05 mg/L
Barium, Total	1.0 mg/L		0.0020 mg/L	1.0 mg/L
Benzene	1.0 µg/L		0.50 µg/L	1.0 µg/L
Benzyl alcohol			2.0 µg/L	2.0 µg/L
Bicarbonate			10 mg/l	10 mg/l
Bis (2-ethylhexyl) phthalate	4.0 µg/L		4.0 µg/L	4.0 µg/L
Boron		1 mg/l	0.1 mg/l	1 mg/l
Cadmium, Total	0.005 mg/L		0.002 mg/L	0.005 mg/L
Calcium			0.1 mg/l	0.1 mg/l
Cations, Total			0.01 mg/l	0.01 mg/l
Chemical Oxygen Demand			25 mg O2/L	25 mg O2/L
Chloride	0.5 mg/l		0.5 mg/l	BPL[2]
Chlorobenzene	30 µg/L		0.50 µg/L	30 µg/L
Chloroethane[3]			0.50 µg/L	Non-Detect
Chloroform			0.50 µg/L	0.50 µg/L
Chromium, Total	0.05 mg/L		0.006 mg/L	0.05 mg/L
Cobalt, Total			0.002 mg/L	0.002 mg/L
Copper, Total			0.004 mg/L	0.004 mg/L
Dichlorobenzene,1,2-	600 µg/L	130 µg/L	0.50 µg/L	600 µg/L
Dichlorobenzene,1,3-		130 µg/L	0.50 µg/L	130 µg/L
Dichlorobenzene,1,4-	5.0 µg/L		0.50 µg/L	5.0 µg/L
Dichloroethane,1,1-	5.0 µg/L		0.50 µg/L	5.0 µg/L
Dichloroethane,1,2-	0.50 µg/L		0.50 µg/L	0.50 µg/L
Dichloroethene, trans-1,2[4]	10 µg/L		0.50 µg/L	Non-Detect
Dichloroethene,1,1-	6.0 µg/L		0.50 µg/L	6.0 µg/L
Dichloroethene, cis-1,2-	6.0 µg/L		0.50 µg/L	6.0 µg/L
Diethyl phthalate			2.0 µg/L	2.0 µg/L
Ethylbenzene	300 µg/L		0.50 µg/L	300 µg/L
Fluoride	2 mg/l		0.25 mg/l	2 mg/l
Hardness, Total			0.50 mg/l	0.50 mg/l
Hexavalent Chromium	0.01 mg/l		0.0002 mg/l	0.01 mg/l
Iron (II)			100 mg/l	BPL
Isobutyl alcohol (Isobutanol)			0.002 mg/L	0.002 mg/L
Lead, Total	0.015 mg/l		0.0020 mg/l	0.015 mg/l
m + p Cresol (3-&4-Methylphenol)			2.0 µg/L	2.0 µg/L

[1] Laboratory PQLs as provided from BC Laboratories in January 2020.
[2] BPL: Background Prediction Limit
[3] Unconfirmed daughter product of Dichloroethane, 1,1-
[4] Unconfirmed daughter product of Dichloroethene, cis-1,2-

TABLE 7 (cont.)
CONCENTRATION LIMITS

Constituent	California Drinking Water Maximum Contaminant Level (MCL)	California Drinking Water Notification Level (NL)	Laboratory Practical Quantitation Limit[1] (PQL)	Concentration Limit Greater Than Background
m,p-Xylenes	1,750 µg/L		0.50 µg/L	1,750 µg/L
Magnesium			0.05 mg/L	0.05 mg/L
Manganese, Total		0.5 mg/l	0.002 mg/l	0.5 mg/l
Mercury, Total	0.002 mg/L		0.0002 mg/L	0.002 mg/L
Methyl isobutyl ketone (MIBK)		120 µg/L	10 µg/L	120 µg/L
Methylene chloride	5.0 µg/L	40 µg/L	1.0 µg/L	5.0 µg/L
Naphthalene		17 µg/L	0.50 µg/L	17 µg/L
Nickel, Total			0.004 mg/L	0.004 mg/L
Nitrate (NO3-N)	45 mg/l		0.1 mg/l	BPL[2]
O-Cresol (2-Methylphenol)			0.20 µg/L	0.20 µg/L
o-Xylene			0.50 µg/L	0.50 µg/L
Phenol			2.0 µg/L	2.0 µg/L
Phenols (Total Phenolics)			0.05 mg/L	0.05 mg/L
Phosphate			0.05 mg/l	0.05 mg/l
Phosphorus, Total			0.05 mg/L	0.05 mg/L
Potassium (K)			1 mg/l	1 mg/l
Selenium, Total	0.05 mg/L		0.004 mg/L	0.05 mg/L
Sodium			1 mg/L	1 mg/L
Styrene	100 µg/L		0.50 µg/L	100 µg/L
Sulfate			1 mg/L	BPL
Tetrachloroethene	5.0 µg/L		0.50 µg/L	5.0 µg/L
Tin, Total			0.002 mg/L	0.002 mg/L
Toluene	150 µg/L		0.50 µg/L	150 µg/L
Total Dissolved Solids	500 mg/l		50 mg/l	BPL
Total Organic Carbon			1 mg/l	1 mg/l
Total Organic Halogens			0.02 mg/l	0.02 mg/l
Total Sulfide			0.1 mg/l	BPL
Trichloroethene	5.0 µg/L		0.50 µg/L	5.0 µg/L
Trichlorofluoromethane	150 µg/L		0.50 µg/L	150 µg/L
Vanadium, Total		50 mg/L	0.006 mg/L	50 mg/L
Vinyl chloride	0.5 µg/L		0.50 µg/L	0.5 µg/L
Xylenes, Total	1,750 µg/L		1.0 µg/L	1,750 µg/L
Zinc, Total			0.02 mg/L	0.02 mg/L
Ethene			0.002 mg/L	0.002 mg/L
Methane			0.001 mg/l	0.001 mg/l

[1] Laboratory PQLs as provided from BC Laboratories in January 2020.
[2] BPL: Background Prediction Limit

ATTACHMENT F
CALIFORNIA NON-STATISTICAL DATA ANALYSIS METHOD (CNSDAM)

A. Non-Statistical Method For Standard Status COCs Seldom Found In Background

For any given groundwater Monitoring Point (Well) subject to compliance testing each Reporting Period, regardless of the monitoring program (DMP, AMP, or CAP), the Owner/Operator shall use this data analysis method, jointly, for all Standard Status Monitoring Parameters (MPars) on that compliance well's "scope list" (see paragraph A.1 for the initial test scope list and paragraph B.1 for the modified scope list use during the single retest).

1. Scope List — Create a current "scope list" for that compliance well that includes each Standard Status MPar, at that well, that exceeds its respective MDL in less than 10% of its background data set in the initial sample taken for that well at the start of the reporting period.

2. Two Triggers — From the scope list made under paragraph A.1, above, for an initial test [or, for a retest, using the modified scope list created under paragraph B.2, below], identify each COC in the current sample from that well that exceeds either its respective MDL or its respective PQL. The Owner/Operator shall conclude that these exceeding COCs provide a preliminary indication [or, for a retest, provide a measurably significant indication] of a release indication, at that compliance well, if either:

    a. three or more of the Standard Status MPars on the well's scope list exceed their respective MDL; or

    b. at least one of the Standard Status MPars on the well's scope list equals or exceeds its respective PQL.

B. Single Discrete Retest (A "Pass-1-of-2" Plan)

1. Notification and Retest Sample Acquisition — In the event that the Owner/Operator concludes (pursuant to paragraph A.2., above) that the initial sample, taken at the very start of the reporting period, indicates that there is a preliminary indication for one-or-more MPars on the scope list for that compliance well, then the Owner/Operator shall immediately notify regulatory agency staff by phone or e-mail and, at mid-reporting-period, shall collect a new independent retest sample from the indicating well.

2. Apply Test To Modified Scope List — For the well's retest sample, the Owner/Operator shall include, from the laboratory retest analysis results, only the determinations for those constituents indicated in that well's original test, under paragraph A.2, and these indicated constituents shall comprise the compliance

well's "modified scope list," for use in the retest. As soon as the retest data are available, the Owner/Operator shall apply the same test [under paragraph A.2, above, but using this modified scope list] to analyze the retest sample's data at that compliance well.

3. Conclusions — If the retest sample trips neither one of the triggers under paragraph A.2, then the Owner/Operator shall conclude that the original indication was in error and shall report this to regulatory agency staff by phone or e-mail and include it in the Monitoring Report for that Reporting Period. In this case, the "scope list" for that well remains unchanged.

4. If, instead, the retest sample trips either (or both) of the triggers under paragraph A.2, then the Owner/Operator shall conclude that there is a measurably significant increase at that well for the constituent(s) indicated in the validating retest sample, shall report this to regulatory agency staff immediately (by phone or e-mail), shall include this information in the Monitoring Report for that reporting period, and shall show the indicated constituents, at that Monitoring Point (Well), as being in Tracking Status in the compliance spreadsheet for that reporting period. Furthermore, the Owner/Operator shall no longer include any such (now Tracking Status) MPar in the scope list created (under paragraph A.1) for that well, for use in future applications of this test method. Such a new Tracking Status Well/MPar pair shall begin being addressed by the Concentration-Versus-Time Plotting data analysis method beginning the next reporting period after the change occurs.

C. UPPER 85th PERCENTILE NONSTATISTICAL METHOD FOR UNPAR TESTING

1. **Concentration Limit (retest-triggering concentration)** – UnPar Constituents of Concern (COCs), are those COCs that are not MPars. Under this Order, they are tested every five years. For any given UnPar at a given Monitoring Point (i.e., for any given Monitoring Point/UnPar pair), its retest-triggering concentration shall be the upper 85th percentile value of its background data set. Nevertheless, for a constituent whose upper 85th percentile value lies below its then current Practical Quantitation Limit (PQL), its retest-triggering concentration is the highest PQL associated with that pair's background data set.

2. **Test & Pass-1-of-2 Retest** - If, during the five-yearly UnPar testing, an UnPar exceeds its respective retest-triggering concentration in its initial sample (taken at the start of the reporting period), the Discharger shall take one retest sample (for the indicating Well/UnPar pair) at mid-period (about 90 days later).