

San Francisco Bay Regional Water Quality Control Board

MONTH XX, 2022
CIWQS Place No. 236597

Las Gallinas Valley Sanitary District
Attention: Chris DeGabriele, Interim General Manager
300 Smith Ranch Road
San Rafael, CA 94903
Sent electronically to cdegabriele@lqvsd.org

Subject: Las Gallinas Valley Sanitary District, Marin County – Enrollment under General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural Activities, Order No. 2004-0012-DWQ

Dear Mr. DeGabriele:

This letter enrolls Las Gallinas Valley Sanitary District (Discharger) under the General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities, Order No. 2004-0012-DWQ (General Order). This enrollment conditionally authorizes the land application of biosolids, generated from the Discharger's wastewater treatment plant at 300 Smith Ranch Road, San Rafael, in Marin County (Facility), to agricultural areas on District property.

On March 9, 2021, the Discharger submitted a Notice of Intent (NOI) to the San Francisco Bay Regional Water Quality Control Board (Water Board) for coverage under the General Order. Supplemental information was submitted on July 28, 2021. Based on the information presented in the NOI and subsequent documents, the land application of biosolids as described (the Project) is consistent with the General Order's requirements.

The Water Board hereby finds that the General Order is applicable to the Project and that the Discharger is henceforth enrolled under and regulated by the General Order, provided that the Discharger complies with the conditions contained in this letter.

This letter serves as the Notice of Applicability (NOA) for enrollment under the General Order. Due to the Project site conditions, including proximity to the San Francisco Bay and tidal wetlands, shallow groundwater, and surface water drainage, Water Board staff will review this NOA after at least three years of data is available to assess whether the General Order continues to be the appropriate long-term permitting mechanism for the

Project. A site-specific Monitoring and Reporting Program for the Project is included as NOA Att. 1.

The discharge must be managed in accordance with the requirements contained in the General Order, the information submitted in the NOI, and the requirements contained in this NOA. A copy of the General Order is enclosed as Att. 2; it may also be viewed on the Water Board website.

https://www.waterboards.ca.gov/board_decisions/adopted_orders/water_quality/2004/wqo/wqo2004-0012.pdf

I. PROJECT LOCATION

District property where biosolids will be applied is located northeast of the Facility and include Assessor's Parcel Numbers (APNs) 155-011-13, 155-011-14, and 155-011-33, as shown in the site plan (Att. 3). These parcels are adjacent to San Pablo Bay to the east and primarily open space to the south and west. This land formerly consisted of mudflats and marshlands that have been separated from tidal action by constructing levees along the east and south boundaries in the early 1900s.

The closest residences are located approximately 0.3 miles to the west of parcel 155-01-13. The land directly adjacent to parcel 155-011-33 on the west side is an unused land owned by the Silveira San Rafael Ranch and the land to the north is an unused land previously owned by the St. Vincent's School for Boys. McInnis County Park and Santa Venetia Marsh are located south, approximately 0.5 and 1 miles away, respectively, and the Hamilton Wetlands are located due north.

The geographic location of the property and the biosolids application areas described in this NOA are within the jurisdiction of the Water Board and subject to the San Francisco Bay Basin Water Quality Control Plan (Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies for protecting waters of the basin and incorporates by reference State Water Board plans and policies. This NOA and its requirements apply to all biosolids land application areas described herein.

II. PROJECT DESCRIPTION

The Discharger has proposed to land apply Class B biosolids for agricultural use on up to 304 acres of District property (parcels 155-011-13, 155-011-14, and 155-011-33, shown on the site plan in Att. 3). This Project will transition the District from biosolids disposal to biosolids beneficial use.

Biosolids generated from the Facility are treated by gravity thickening and anaerobic digestion in primary and secondary digesters and then pumped to three sludge storage lagoons. The sludge storage lagoons are double-lined and have a total capacity of approximately 3.2 million gallons. Currently, between 200 and 250 dry metric tons of biosolids per year are disposed of onsite at the Discharger's nine-acre dedicated land disposal (DLD) site, shown on the site plan (Att. 3). The Discharger injects liquid biosolids from the sludge storage ponds to the DLD site one to two times per year.

Through this Project, the Discharger will shift from disposing biosolids on nine acres to beneficially using biosolids by land applying on up to 304 acres as a soil amendment for agricultural production. Parcels 155-011-13 and 155-011-14 (238 acres) are currently under agricultural production (pasture hay crop) and irrigated with treated effluent (recycled or reclaimed water). Parcel 155-011-33 (66 acres) is currently unused land that has been disked in the past for weed abatement and is not irrigated; it is planned to be dry farmed for pasture hay crop. Liquid or cake biosolids will be land applied at agronomic rates. In the liquid form (approximately 4% solids), biosolids will be applied using either mobile applicator vehicles and equipment or direct pumping from three existing sludge storage lagoons to the biosolids application areas. Dewatered biosolids cake application may be done at some time in the future at the discretion of the District, at percent solids estimated between 11 and 20%, using a mobile belt press, centrifuge system, or equal, operated by the District or a third-party contractor to the District. A third-party contractor or contractors will be used for biosolids land application and farming services. No in-field storage of liquid biosolids is planned; management of dewatered biosolids cake will comply with General Order requirements. The DLD site will remain in place and be available to dispose biosolids if needed.

The Discharger plans to apply 200 dry metric tons of biosolids annually. Land application is planned to occur between May 1 and October 31 on parcel 155-011-33 and between May 1 and August 15 on parcels 155-011-13 and 155-011-14 to reduce runoff risk and allow crop uptake of nutrients throughout the growing season before harvest.

III. SITE CHARACTERISTICS

The site is located in the Bay Plain geomorphic zone within the Coast Ranges Geomorphic Province, a seismically active province that is characterized by a series of northwest trending faults, mountain ranges, and valleys. The Bay Plain extends from the edge of San Pablo Bay to the foot of the hills west of the site (Jones & Stokes Associates, Inc., 1998). The soils at the site are classified as Reyes series, which occur on estuarine sediments in "reclaimed" diked tidelands and are formed in mixed alluvium from the Bay and streams (National Cooperative Soil Survey, 1985). Underlying the Reyes soil are thick deposits of soft, unconsolidated, organic-rich, highly plastic, water-saturated, silty clays known as Bay Mud. The depth of Bay Mud in the area ranges from 30 to 90 feet below the ground surface (Jones & Stokes Associates, Inc., 1998). Bay Mud is typically classified as an unconfined aquitard due to its low permeability and the absence of a confining layer (The Earth Technology Corporation, 1994).

A. Surface Water and Site Drainage

The topographic maps (USGS, 2018a, 2018b) and aerial photographs (Google Earth, 2020) show sloughs and drainage channels present at and surrounding the site. The general topography at the site is flat with a slight slope to the east with elevations ranging between 4 and -1 feet above mean sea level (MSL). The expected average annual precipitation in the area is 34 inches. The Discharger operates a pumphouse by the levee access road at the southeastern corner of parcel 155-011-14, which is used for runoff control and flood management when needed.

According to historical topographic maps, Miller Creek previously flowed from the west to San Pablo Bay along the north border of parcel 155-011-33 until it was rerouted in the 1940s to flow south along the parcel's west border and then east along the south border of the LGVSD facility (USGS, 1914 and U.S. Army Corps of Engineers, 1942).

B. Groundwater

Groundwater in the vicinity of site is not used as drinking water or for agriculture. The depth to groundwater ranges from near zero to 8 feet below ground surface west of the levees, which is within Bay Mud. Water levels in the monitoring wells at sites in the area remain relatively static and do not indicate a hydraulic gradient from a sloping water table. The hydraulic gradient at nearby sites appears to be tidally influenced and flow perpendicular to the San Pablo Bay edge or toward drainage channels and creeks that exhibit tidal flows (The Earth Technology Corporation, 1994). Groundwater flow direction at parcel 155-011-33 may be influenced by the present and former routes of Miller Creek. Based on the tidal influence exhibited at nearby sites, flat topography, low elevation, and the surface water flow in the area, groundwater flow at the site is anticipated to be tidally influenced and flow west to east and east to west.

IV. CONDITIONS OF ENROLLMENT IN GENERAL ORDER

The Water Board may, in accordance with the General Order, require modifications to proposed discharge activities or additional information to verify that the proposed discharge will not cause or contribute to violations of water quality standards or otherwise impact water quality. Due to the proximity to the Bay and tidal marshland, shallow groundwater, and potential for surface water impacts from runoff and flooding on the parcels, additional conditions for this Project are necessary. Accordingly, in order to maintain coverage under the General Order, the Discharger is required to:

- Participate in the research project *Unregulated Organic Chemicals in Biosolids: Prioritization, Fate and Risk Evaluation for Land Applications*, EPA Grant Number R840245 (Research Project). Coordinate with the Water Board as appropriate, provide timely updates on research progress, and provide project status reports in each annual report for the duration of the Research Project.
- Complete additional characterization of Discharger biosolids and biosolids disposal and land application sites, as specified in the required technical reports: Biosolids and Site Characterization Workplan and Report.
- Provide a flood protection plan that assesses the vulnerability of the Project to sea level rise and groundwater rise, as specified in the required technical report: Flood Protection Plan.
- Limit the land application period to between May 1 and October 31 on parcel 155-011-33 and between May 1 and August 15 on parcels 155-011-13 and 155-011-14 to reduce runoff risk.
- Conduct additional monitoring as specified in the site-specific Monitoring and Reporting Program.

V. SITE SPECIFIC AND OTHER REQUIREMENTS

- Application of biosolids at a location or in a manner different from that as described in the NOI, this NOA, and the Pre-Application Reports is prohibited.
- The application shall not cause or threaten to cause pollution as defined by California Water Code (Water Code) section 13050.
- There shall be no discharge of biosolids from the storage or application areas to adjacent land areas not regulated by this NOA, to surface water, or to surface water drainage courses.
- The application of biosolids shall comply with all applicable setbacks contained in the General Order.
- Application of biosolids at rates in excess of the nitrogen requirements of the vegetation or at rates that would degrade groundwater quality is prohibited.
- The application of biosolids to water-saturated ground or during periods of precipitation is prohibited.
- The application of Class B biosolids containing a moisture content of less than 50 percent is prohibited.
- The Discharger is required to implement its Monitoring and Reporting Plan.

VI. MONITORING AND REPORTING PROGRAM

The Discharger shall comply with the site-specific Monitoring and Reporting Program in Notice Att. 1, which is attached hereto and made part of this Notice by reference.

VII. TECHNICAL REPORT REQUIREMENTS

The following technical reports are required pursuant to Water Code sections 13383 and 13267. All technical documents shall be signed by and stamped with the seal of a California registered geologist, a California certified engineering geologist, or a California registered civil engineer. The technical reports shall be acceptable to the Water Board's Executive Officer and shall be submitted as described below.

A. Biosolids and Site Characterization Workplan

By February 1, 2023, the Discharger shall submit a workplan to investigate the occurrence of constituents in the Facility biosolids and in soil in and adjacent to the area where biosolids are disposed of and will be applied to the land, as well as groundwater and surface waters receiving stormwater runoff from areas where biosolids are applied to land. Characterization of baseline conditions and conditions after land application occurs shall be included in the workplan; existing historical data may be used to inform baseline conditions. It is anticipated that the District will coordinate with the Research Project in development of this workplan.

At a minimum, the workplan shall include the following:

- Site description and historical property use
- A description of the geology, hydrogeology, and surface water hydrology of the property and vicinity
- Summary of existing information and soil or water quality data, if any, at the property and vicinity, including an evaluation of their relevance to current conditions
- A map showing the proposed sampling locations by media (e.g., soil, groundwater, surface water) with a table or text presenting the rationale for each location
- A description of field sampling methods to be used
- A list of target constituents for laboratory analysis by media (e.g., biosolids, soil, groundwater, and surface water) for a one-time sampling and analysis, rationale for constituent selection, and identification of laboratory analytical methods to be used¹; the list of target constituents to consider²:
 - Constituents required by the General Order
 - EPA Priority Pollutant list (not otherwise included by the General Order)
 - Polycyclic Aromatic Hydrocarbons (PAHs)
 - Volatile Organic Compounds (VOCs)
 - Total Petroleum Hydrocarbon (TPH)
 - Dioxins and furans
 - Per- and Polyfluoroalkyl Substances (PFAS)
 - Flame retardants such as polybrominated diphenyl ethers (PBDEs)
 - Relevant endocrine disruptors such as bisphenols, phthalates, and triclosan
 - Ethoxylated surfactants
 - Pesticides including pyrethroids, imidacloprid, and fipronil
- A basis for evaluating the soil, groundwater, and surface water data with suitable ambient background conditions, water quality objectives, or other screening guidelines for the target constituents
 - Biosolids and field soils data shall be evaluated against ambient background conditions; the General Order; *Standards for the Use or Disposal of Sewage Sludge*, Code of Federal Regulations, title 40, part

¹ Laboratory reporting limits shall be lower than concentrations that implement applicable limits, water quality objectives, or risk thresholds for the constituents to be analyzed, as reasonable.

² The Discharger may propose other constituents or to omit suggested constituents. The list can vary between environmental media, and the Discharger may propose to analyze the biosolids for a more comprehensive list which informs a more targeted list to analyze in other environmental matrices.

503 (40 CFR Part 503); *Beneficial Reuse of Dredged Materials: Sediment Screening and Testing Guidelines*, San Francisco Bay Regional Water Quality Control Board Draft Staff Report (May 2000) and *Expert review of the sediment screening guidelines for the beneficial reuse of dredged material in San Francisco Bay*³ (2020); San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (ESLs)⁴; and peer-reviewed toxicity thresholds for sediment (for constituents of emerging concern not included in the prior references).

- Groundwater and surface water data shall be evaluated against ambient background conditions; the General Order; 40 CFR Part 503; ESLs; and peer-reviewed toxicity thresholds for freshwater and marine water.
- Exceedances of thresholds or screening levels which are not regulatory limits are not considered a violation of this NOA.
- Identification of permits or authorizations to be obtained.
- A schedule for the field implementation of the workplan, data evaluation, and reporting of results.

B. Biosolids and Site Characterization Report

The Discharger shall submit a technical report documenting implementation of the workplan as approved by the Water Board. At a minimum, the report shall include the following:

- Description of preparatory and investigation activities
- Description of the laboratory analytical results for biosolids, soil, groundwater, and surface water
- Data evaluation
- Conclusions and recommendations
- A map or maps showing the final locations of field sampling locations and depicting analytical results, as appropriate
- Tables of analytical results
- Copies of laboratory analytical reports and other information (e.g., boring logs, well construction logs)

C. Sampling and Analysis Plan

By February 1, 2023, the Discharger shall submit a sampling and analysis plan sufficient to assure compliance with the terms of the General Order, NOA, and

³ Foley, M.; Christian, E.; Goeden, B.; Ross, B. 2020. Expert review of the sediment screening guidelines for the beneficial reuse of dredged material in San Francisco Bay. SFEI Contribution No. 978. San Francisco Estuary Institute: Richmond, CA.

⁴ https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.html

Monitoring and Reporting Program. At a minimum, the sampling and analysis plan shall describe the following:

- Sample chain-of-custody procedures and documentation
- Sampling locations
- Sampling frequencies
- Sample handling/preservation procedures
- Analytical methods
- Sample containers, preservatives, and holding times

D. Flood Protection Plan

By February 1, 2023, the Discharger shall submit a Flood Protection Plan that includes an assessment of the vulnerability of the Project to sea level rise and groundwater rise, as follows:

- **Sea Level Rise.** Explain how the Discharger manages existing flooding risks at the Project location (e.g., protective measures already in place, planned, or proposed). Explain how the Discharger intends to manage future flooding risks through the expected life of the Project or through 2050 (e.g., planning efforts and protective measures in place, planned, or proposed). What guidance and assumptions are being used to anticipate sea level rise? If the Discharger has not yet established a plan, explain the process and timeline for doing so.
- **Groundwater Rise.** Explain how the Discharger intends to manage future flooding at the Project location related to groundwater rise through the expected life of the Project or through 2050 (e.g., ongoing planning efforts and protective measures in place, planned, or proposed). If the Discharger has not yet established a plan, explain the process and timeline for doing so. If the Discharger believes it will not be susceptible to flooding related to groundwater rise within 50 years, explain the basis for the conclusion.

The plan shall propose an adaptive management strategy that will be updated every five years and compared against actual sea-level rise and updated projections.

Climate change is shifting precipitation and temperature patterns, exacerbating extreme weather events, and causing sea level and groundwater rise. These conditions have significant implications for the Project.

We consider the Ocean Protection Council's *Sea-Level Rise Guidance*⁵ to be the most current authoritative source supporting planning for sea level rise in California. In May 2020, the California Coastal Commission adopted *Making California's Coast Resilient to Sea Level Rise: Principles for Aligned State Action*.⁶ The California Environmental

⁵ https://opc.ca.gov/webmaster/ftp/pdf/agenda_items/20180314/Item3_Exhibit-A_OPC_SLR_Guidance-rd3.pdf

⁶ <https://documents.coastal.ca.gov/reports/2020/5/w6g/w6g-5-2020-exhibits.pdf>

Protection Agency, including the State Water Resources Control Board, has endorsed these principles, which recommend using a minimum sea level rise target of 3.5 feet by 2050 for planning purposes. This target applies a safety factor to the California Ocean Protection Council's sea level rise estimates, which do not account for extreme storm surges, tides, or other weather events on top of sea level rise.

The Flood Protection Plan may evaluate and select strategies consistent with the most recent version of the San Francisco Bay Shoreline Adaptation Atlas (currently 2019), prepared by the San Francisco Estuary Institute (Adaptation Atlas). The Adaptation Atlas serves as an important science-based tool for developing adaptation strategies for the Bay shoreline as climate change impacts the shoreline. The Adaptation Atlas uses a framework of Operational Landscape Units (OLUs) where the key purpose of the OLU framework is to identify where it may be possible to use nature-based approaches, such as beaches, marshes, and subtidal reefs, to create a resilient shoreline with multiple benefits. Nature-based approaches, and hybrid measures that integrate nature with engineered structural approaches, may perform better than traditional engineered infrastructure alone.

VIII. ENFORCEMENT

Please review this NOA carefully to ensure that it completely and accurately reflects the discharge of biosolids to land for use as a soil amendment in agricultural activities. Failure to abide by the conditions of the General Order and this NOA could result in enforcement actions, as authorized by provisions of the Water Code.

Prior to implementing any discharge changes, a new NOI must be submitted for continued coverage under the General Order. Alternatively, a Report of Waste Discharge may be submitted for coverage under individual Waste Discharge Requirements.

IX. ANNUAL FEES

The Discharger is responsible for payment of an annual fee, pursuant to Water Code section 13263 and the Annual Fee Schedule as stated in the California Code of Regulations, title 23, division 3, chapter 9, section 2200. The fee amount is determined by the type of order and the threat to water quality and complexity rating. Biosolids application projects greater than or equal to 40 acres are deemed as a category "2" threat to water quality rating and a category "B" complexity rating. The corresponding annual fee is currently **\$23,783** (2021-22 Fee Schedule). The Water Quality Fee Schedule is subject to change annually and is accessible online at http://www.waterboards.ca.gov/resources/fees/water_quality/#wdr.

The fee is due and payable on an annual basis until coverage under the General Order is formally terminated. Coverage under the General Order may be terminated by submittal of the Final Monitoring and Reporting Program technical report and a Notice of Termination (NOT). For sites using Class B biosolids, termination shall not take place until 38 months after the last Class B biosolids application. The Discharger will be responsible for paying all annual fees until approval of the NOT is granted by the Water

Board's Executive Officer. If an individual Waste Discharge Requirements (WDR) Order is issued for this Project, the applicability of this General Order to the Discharger is automatically terminated on the effective date of the individual WDR Order.

X. AUTHORIZATION FOR COVERAGE UNDER ORDER 2004-0012-DWQ

I hereby approve the Project as described in the Notice of Intent and supplemental information to henceforth be regulated under the General Order. Failure to abide by the conditions of the General Order, this Notice of Applicability, and the Monitoring and Reporting Program, could result in enforcement actions, as authorized by provisions of the California Water Code.

If you have any questions or would like to discuss further, contact Margaret Monahan of my staff via email to Margaret.Monahan@waterboards.ca.gov or at (510) 622-2377.

Sincerely,

for Thomas Mumley
Interim Executive Officer

Attachments: 1. Monitoring and Reporting Program
 2. General Order 2004-0012-DWQ
 3. Project Location and Biosolids Application Area Maps

Copy to (by email): Las Gallinas Valley Sanitary District
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ATTACHMENT 1: Monitoring and Reporting Program

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ATTACHMENT 2: General Order 2004-0012-DWQ

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**ATTACHMENT 3: Project Location and Biosolids Application Area
Maps**

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