CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2019-0002

WASTE DISCHARGE REQUIREMENTS

FOR

SYNAGRO WEST, LLC
AND
GARY SILVA, Sr.
SILVA RANCH BIOSOLIDS LAND APPLICATION
SACRAMENTO COUNTY

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

1. On 1 June 2017, Synagro West, LLC (Synagro) submitted a Report of Waste Discharge (RWD) describing reuse of stabilized municipal wastewater treatment plant biosolids as a soil amendment on Silva Ranch properties located at 11540 Clay Station Road (Facility), near the unincorporated community of Herald in Sacramento County (Section S25, T6N, R7E, MDB&M). Synagro submitted a RWD Addendum on 2 October 2017.

2. The Facility is situated on 3,000 acres of agriculturally-zoned property, owned by Gary Silva Sr. (Silva). Synagro manages the application of biosolids at the Facility. Synagro and Silva (*collectively*, Dischargers) are each responsible for complying with these Waste Discharge Requirements (WDRs).

3. The Facility is private farmland, fenced-off with gated access points to control public access. The Facility has historically been divided into two sections, "Silva Ranch I" and "Silva Ranch II," made up of 17 separate Assessor's Parcel Numbers (APN), listed below. Locations of these APNs are depicted in Attachments A-B, which are incorporated herein.

Location	**Assessor's Parcel Numbers**
Silva Ranch I	APN 136-0280-023, APN 138-0060-028, APN 140-0030-028, APN 140-0030-029, APN 140-0050-021
Silva Ranch II	APN 136-0280-024, APN 136-0280-040, APN 136-0280-039, APN 138-0060-025 [1], APN 138-0060-030 [1], APN 138-0060-031, APN 138-0060-049 [1], APN 138-0060-053 [1], APN 138-0060-054, APN 138-0060-059 [1], APN 138-0060-061 [1], APN 138-0060-064 [1]

Notes:

[1] These parcels may be subject to the Irrigated Lands Program, which addresses discharges of wastes (e.g., sediments, pesticides, nitrates) from commercial irrigated lands.

4. The Dischargers have been applying biosolids as a soil amendment at Silva Ranch I since 1995, and at Silva Ranch II since 1998.

5. WDRs Order 95-064, adopted by the Central Valley Water Board on 24 March 1995, prescribes requirements for the discharge of biosolids on approximately 1,200 acres of Silva Ranch I.

6. WDRs Order 98-023, adopted by the Central Valley Water Board on 23 January 1998, prescribes requirements for the discharge of biosolids on approximately 1,600 acres of Silva Ranch II.

7. Monitoring and Reporting Program (MRP) Order No. R5-2007-0807, issued on 25 April 2007, prescribes requirements for monitoring biosolids and biosolids land application areas that are regulated under WDRs Order 95-064 and WDRs Order 98-023.

8. In rescinding WDRs Order 95-064, WDRs Order 98-023, and MRP Order No. R5-2007-0807, this Order establishes a unified permit for biosolids application on both Silva Ranch I and Silva Ranch II.

Existing Facility and Discharge

9. The State Water Resources Control Board's (State Water Board) general findings regarding "biosolids," as set forth in Finding Nos. 4-10 of the 22 July 2004 WDRs General Order 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 (Biosolids General Order), are incorporated as though fully set forth herein.

10. "Class A" biosolids and "Class B" biosolids, as defined in section 503.32 of 40 Code of Federal Regulations part 503 (40 C.F.R. part 503, Standards for the Use or Disposal of Sewage Sludge), are accepted at the property year-round for use as a fertilizer in production of durum wheat, sudan grass and similar crops. Both "Class A" and "Class B" biosolids meet all 40 C.F.R. part 503 vector attraction and pollution concentration limits, and the pathogen reduction standards set forth in section 503.32. Biosolids are designated "Class A" biosolids when treated to essentially remove all pathogens. (See 40 C.F.R. section 503.32(a).) When treatment substantially reduces but does not completely remove all pathogens, biosolids are considered "Class B." (See *id*., section 503.32(b).)

11. The Facility receives biosolids from various municipal wastewater treatment facilities throughout California. These facilities primarily generate "Class B" biosolids. Applied biosolids contain approximately 13 to 90 percent total solids, with little or no free water.

12. Within Silva Ranch I and Silva Ranch II, predominantly "Class B" biosolids are applied to multiple fields, some of which stretch across multiple APNs. These fields, also referred to as designated land application areas (LAAs), are individually numbered, but vary in shape and size. The Discharger has remapped the fields to better facilitate the identification of field boundaries and tracking biosolids application, which include updating field boundaries and matching the boundaries to the cropping patterns. The

number of fields and designation of the LAAs have changed from the original 80 fields. These individual fields/designated LAAs are depicted on Attachments A-B.

13. The Facility allows for delivery 24 hours a day, seven days per week, 365 days per year (weather permitting). Each truckload of biosolids (one truck trip) averages about 25 wet tons. The Dischargers are in the process of renewing their Sacramento County Conditional Use Permit (CUP) for the spreading and disking of biosolids on the property. No changes to their existing biosolids application operations are being proposed for the new CUP. The prior permit, CUP No. 04-UPB-0427, which expired on 31 December 2017, authorizes the following:

    a. Transporting up to 70 truckloads of biosolids to the Facility each day;

    b. Depositing 184,000 tons of biosolids annually (10,000 of which may be liquid biosolids); and

    c. On-site biosolids storage of up to 32,000 cubic yards.

14. Biosolids are delivered to the Facility in dump trailers and off-loaded at a staging area within the field (designated LAA) where the biosolids are to be applied. Within 24 hours of arrival, biosolids are loaded from the ground into surface application equipment (e.g., a manure spreader, side slinger spreader, etc.) and applied by spreading onto the field. Applied biosolids are then incorporated into the topsoil, via disking, within 24 hours. The operation is managed so that fields receive biosolids on a rotational basis.

15. Under unusual emergency circumstances (e.g., equipment breakdowns), when all offloaded biosolids cannot be spread the same operating day, temporary on-site storage areas are created using hay bales and earth embankments, metal or plastic transfer boxes.

16. Biosolids application operations are discontinued when soils in a designated LAA become saturated. Operations are not resumed until soils at the designated LAA have sufficiently dried to allow equipment access without damaging soil.

17. During inclement weather, biosolids are kept at a clay-lined, 2.2-acre storage area surrounded by 5 to 10-foot high concrete and soil berms. Referred to as the “Pit,” this storage area is considered a “short-term” (less than consecutive 7 days) storage facility. The location of the Pit is shown on Attachment A. Once inclement weather has passed and conditions at the designated LAA are suitable for application, stored biosolids are applied at the designated LAA. The Dischargers operate the Pit in accordance with their Short-Term Biosolids Storage Plan dated 25 October 2014 to comply with the Biosolids Storage and Transportation Specifications in section E of this Order.

18. Biosolids are applied to fields at agronomic rates calculated based on the estimated nitrogen uptake of crops planted at each field, recommendations for optimal crop production, and any residual nutrients from prior applications at the same field. Vehicles used for spreading the biosolids are calibrated by measuring the amount handled on a known square footage.

19. Durum wheat and sudan grass are currently grown on the Silva Ranch property.

    a. Durum wheat is planted during the winter months, from 1 September through 31 March, and harvested through pasturing through the late spring. The RWD states that the recommended agronomic rate for durum wheat in Sacramento County ranges from 250 to 370 pounds of nitrogen per acre (lb/ac). The Dischargers have historically used an agronomic rate of 250 lb/ac.

    b. Sudan grass is planted during the summer months from 1 April through 31 August. Harvesting can occur every 21 to 30 days. The recommended agronomic rate for sudan grass in Sacramento County ranges from 350 to 560 lb/ac, depending on how intensely the crop is managed. The Dischargers have historically used an agronomic rate of 350 lb/ac.

    c. Crops are grown and harvested exclusively for livestock grazing and production of livestock feed. When used for livestock feed, crops are harvested roughly 90 days after planting. The Dischargers do not graze milk cows at the property. Prior WDRs restrict grazing of livestock for 30 days.

    d. The Facility does not grow turf or sod sold for offsite uses, or food crops used for human consumption.

20. The Dischargers' supplemented RWD includes a Biosolids Management Plan dated 1 June 2017 and Biosolids Spill Response Plan dated 25 March 2015. Taken together, these plans adequately comply with the Discharge Specifications and Land Application Area Specifications set forth in sections B and D of this Order.

21. Per their supplemented RWD, Dischargers will implement the following operational flood and surface water protection measures:

    a. Bermed fields to prevent off-site discharge to other designated LAAs.

    b. Fourteen storm water runoff retention ponds, designed to collect runoff falling on the drainage area from a 24-hour storm with a return frequency of 25 years.

    c. Portions of designated LAAs falling within a 100-year flood plain will not receive biosolids between15 October and 15 April.

22. Although there are surface waters in the vicinity of designated LAAs receiving biosolids on a year-round basis (Browns Creek flows through in the northern portion of the Silva Ranch I; Hadselville Creek bisects the southern portion of Silva Ranch°I; and Laguna Creek bisects Silva Ranch II), the Dischargers' surface water protection measures are sufficient to obviate the need for surface water monitoring in the adjacent creeks. The Dischargers will also be conducting routine field inspections and storm water pond monitoring to verify that there is no uncontrolled runoff drainage to surface waters.

23. The entire Facility is situated on land with a "low potential for public exposure," as defined per 40 C.F.R. section 503.32(b). Additionally, public access to the Facility is restricted. (For the purposes of this Order, areas with a "high potential for public exposure" include those within a mile of: educational facilities; facilities designed for

recreational activities other than hunting, fishing, or wildlife conservation; places of public assembly; hospitals; and similarly-sensitive receptors.)

24. A few designated LAAs are known to have received, or appear to have received, compostable materials ("green material" as defined in 14 California Code of Regulations (CCR), section 17852(21).). As of 28 October 2016, green material has not been applied to any field designated as LAAs to receive biosolids.

Non-Enrollment under Biosolids General Order

25. The Dischargers' biosolids land application operation at the Facility does not qualify for regulatory coverage under the State Water Board's Biosolids General Order (see Finding No. 9) because the operation:

    a. Exceeds the allowable 2,000 net acreage;

    b. Does not comply with Discharge Specification B.10.b(2)(a) of the Biosolids General Order ("For at least 60 days after application of biosolids in areas with average daily (daytime) air temperatures exceeding 50 degrees Fahrenheit … Domesticated Animals are not grazed."); and

    c. Does not comply with Prohibition A.14 of the Biosolids General Order, which prohibits the application of "Class B" biosolids containing a moisture content of less than 50 percent.

26. Although the Dischargers' operation does not qualify for coverage under the Biosolids General Order, the Central Valley Water Board is not precluded from prescribing individual WDRs per this Order, which establishes Prohibitions and Discharge Specifications similar to those contained in the Biosolids General Order. Moreover, the Biosolids General Order is not intended to be the exclusive means of regulating the water quality impacts from biosolids application. (See State Water Board Order No. 2004-0012-DWQ, p. 1, Finding No. 1.)

Site-Specific Conditions

27. The Facility is located on moderately flat terrain, with an overall site elevation of approximately 86.9 feet, and soil slopes between 0 and 36 percent (20 degrees). Most of the fields receiving biosolids have surface slopes of less than 10 percent (5.7 degrees). The only areas with surface slopes exceeding 10 percent are fields within APN 136-0060-028, APN 136-0280-023, APN 140-0030-028, and APN 140-0030-029.

28. Approximately 1,000 acres of the Facility falls within a 100-year flood plain designated in the Federal Emergency Management Agency's Flood Insurance Map. The affected portion—located at the lowest elevations of Silva Ranch I and Silva Ranch II, south of Hadseville Creek, North of Browns Creek and West of Laguna Creek—is not used for biosolids application in the wet season.

29. The Facility is located in a rural, remote area of southern Sacramento County. Surrounding land uses are agricultural, typically consisting of fields planted with durum

wheat and sudan grass and grazing of cattle. Rancho Seco Nuclear Generating Station and the Rancho Seco Regional Park are located southeast of Facility.

30. Based on data from the nearest weather station in Sloughhouse 6 SE, California (048293), the annual average total precipitation is 20.1 inches and the 100-year precipitation is approximately 33.7 inches. (Under the General Order, this Facility would be classified as being situated in a “non-arid” location.)

31. The Facility is located within reference evapotranspiration (ETo) Zone 14, which has an annual average ETo of approximately 57.0 inches.

Groundwater Conditions

32. Soil types in the area classified by the Natural Resource Conservation Service (formerly Soil Conservation Service) include Capay Clay Loam, Corning Complex, Hadselville-Pentx Complex, Hicksville Loam, Redding Gravelly Loam, and San Joaquin-Xerarents.

33. There is no groundwater monitoring network at the Facility.

34. Based on data from the California Department of Water Resources, Groundwater Information Center Interactive Map Application, depth to groundwater at the Facility is approximately 150 feet below ground surface (bgs).

Basin Plan, Beneficial Uses, and Regulatory Considerations

35. The operative Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (Basin Plan) designates beneficial uses, establishes water quality objectives, contains implementation plans and policies for protecting waters of the basin, and incorporates by reference plans and policies adopted by the State Water Board. In accordance with Water Code section 13263, subdivision (a), this Order prescribes WDRs implementing the Basin Plan.

36. Local drainage is to Browns Creek and Hadselville Creek, tributary to Laguna Creek and the Cosumnes River. Per the Basin Plan, beneficial uses of the Cosumnes River are: municipal and domestic supply (MUN); agricultural supply (AGR); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms (MIGR); spawning, reproduction, and/or early development (SPAWN); and wildlife habitat (WILD).

37. Per the Basin Plan, beneficial uses of underlying groundwater are MUN, AGR, industrial service supply (IND) and industrial process supply (PRO).

38. The Basin Plan establishes narrative water quality objectives (WQOs) for chemical constituents, tastes and odors, and toxicity in groundwater; and sets forth a numeric objective for total coliform organisms.

39. The Basin Plan’s numeric WQO for bacteria requires that the most probable number (MPN) of coliform organisms over any seven-day period shall be less than 2.2 per 100 mL in MUN-designated groundwater.

40. The Basin Plan's narrative WQOs for chemical constituents, at a minimum, require MUN-designated waters to meet the maximum contaminant level (MCLs) specified in California Code of Regulations, title 22 (Title 22). The Basin Plan recognizes that the Central Valley Water Board may apply limits more stringent than MCLs to ensure that waters do not contain chemical constituents in concentrations that adversely affect beneficial uses.

41. The narrative toxicity WQO requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, animal, plant, or aquatic life associated with designated beneficial uses.

42. Quantifying a narrative WQO requires a site-specific evaluation of those constituents that have the potential to impact water quality and beneficial uses. The Basin Plan states that when compliance with a narrative WQO is required to protect specific beneficial uses, the Central Valley Water Board will, on a case-by-case basis, adopt numerical limitations to implement the narrative WQO.

43. In the absence of specific numerical water quality limits, the Basin Plan methodology is to consider any relevant published criteria. General salt tolerance guidelines, such as *Water Quality for Agriculture* by Ayers and Westcot, and similar references indicate that yield reductions in nearly all crops are not evident when irrigation water has an EC less than 700 µmhos/cm. There is, however, an eight- to ten-fold range in salt tolerance for agricultural crops and the appropriate salinity values to protect agriculture in the Central Valley are considered on a case-by-case basis. It is possible to achieve full yield potential with waters having EC up to 3,000 µmhos/cm if the proper leaching fraction is provided to maintain soil salinity within the tolerance of the crop. The list of crops in the Findings are not intended as a definitive inventory of crops that are or could be grown in the area where groundwater quality is potentially affected by the discharge, but it is representative of current and historical agricultural practices in the area.

44. The Central Valley Water Board adopted Basin Plan amendments incorporating new programs for addressing ongoing salt and nitrate accumulation in the Central Valley at its 31 May 2018 Board Meeting. These programs, once effective, could change how the Central Valley Water Board permits discharges of salt and nitrate. For nitrate, dischargers that are unable to comply with stringent nitrate requirements will be required to take on alternate compliance approaches that involve providing replacement drinking water to persons whose drinking water is affected by nitrates. Dischargers could comply with the new nitrate program either individually or collectively with other dischargers. For salinity, dischargers that are unable to comply with stringent salinity requirements would instead need to meet performance-based requirements and participate in a basin-wide effort to develop a long-term salinity strategy for the Central Valley. This Order may be amended or modified to incorporate any newly-applicable requirements.

45. The stakeholder-led Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS) initiative has been coordinating efforts to implement new salt and nitrate management strategies. The Board expects dischargers that may be affected by new salt and nitrate management policies to coordinate with the CV-SALTS initiative.

Antidegradation Analysis

46. The State Water Board's *Policy with Respect to Maintaining High Quality Waters of the State*, Resolution No. 68-16 (Antidegradation Policy) prohibits degradation of groundwater unless it shown that anticipated degradation:

    a. Is consistent with the maximum benefit to the people of the state.

    b. Will not unreasonably affect present and anticipated future beneficial uses.

    c. Does not result in water quality less than that prescribed in state and regional policies, including violation of one or more water quality objectives, and

    d. Is minimized by practicable treatment or control (BPTC) applied by the discharger.

47. Degradation of groundwater by some of the typical constituents associated with the application of biosolids as a soil amendment, when applied at agronomic rates and using best management practices, is consistent with the maximum benefit to the people of the state. The economic prosperity of valley communities and associated industry is of maximum benefit to the people of the State, and provides sufficient justification for allowing the limited groundwater degradation that may occur pursuant to this Order.

48. The Dischargers do not monitor groundwater quality at the site. Depth to groundwater is approximately 150 feet. Based on site soils, depth to restrictive soil layers may occur at approximately 78 inches. It is not possible to determine pre-1968 groundwater quality from available data. The Dischargers are not required to provide groundwater monitoring because groundwater at the biosolids application area is at depths greater than 25 feet.

49. Constituents of concern that have the potential to degrade groundwater include pathogens, heavy metals, and nitrogen, which can be present in the biosolids.

    a. Pathogens can cause water quality problems that could result in public health problems. Public access control; crop use and site restrictions; and buffer zones around water supply wells, surface water drainage courses, and public areas are control measures to prevent and reduce the threat to water quality and transmission of pathogens to the public.

    b. Over-application of heavy metals can result in water quality and/or public health problems. Establishing application rates for specific metals will minimize groundwater degradation.

    c. Biosolids are a significant source of nitrogen. Over-application of nitrogen can result in the buildup of nitrogen in the soils. Excess nitrogen can eventually convert to nitrate, which can migrate to groundwater causing degradation. Establishing application rates that meet the agronomic rates of the crops to be grown will minimize groundwater degradation.

50. This Order establishes biosolids quality limitations and groundwater limitations for the application areas that will not unreasonably threaten present and anticipated beneficial uses, or result in groundwater quality exceeding concentration limits that are protective of designated beneficial uses. Based on the depth to shallow groundwater, biosolids character, and application loading rate, the discharge of biosolids does not pose a threat to groundwater quality. The requirements of this Order do not allow any degradation to occur.

51. The Dischargers will provide the following biosolids operation and control measures.

    a. Biosolids will meet the U.S. Environmental Protection Agency's (USEPA) criteria for land-application (see 40 C.F.R. part 503).

    b. The LAAs are on private property, secured by fencing and gates to prevent public access.

    c. Approximately 3,000 acres is available for biosolids application.

    d. Nutrient loading from the biosolids is a calculated rate, specific to the nitrogen uptake for the crop to be planted (determined based on agronomic recommendations for proper crop production and residual nutrients from previous applications).

    e. LAAs within the 100-year flood plain will not receive biosolids between 15 October and 15 April of each year.

    f. The Dischargers maintain setback distances for the staging, storage and biosolids application areas, as defined per the Discharge Specifications in section B of this Order.

    g. Biosolids application area includes berms and 14 storm water runoff retention ponds to collect any runoff from the application fields. Routine storm water monitoring is performed when water is present in the ponds. Storm water runoff released to surface waters and/or used for irrigation is reported in the annual report.

    h. The Dischargers maintain the biosolids storage area (Pit) in accordance with their Short-Term Biosolids Storage Plan. The Pit is clay-lined and surrounded by 5 to 10-foot-high concrete and soil berms to prevent runoff and run-on into the area.

    i. The Dischargers maintain a Biosolids Management Plan**,** which describes the operational procedures regarding biosolids application and storage activities, including procedures for spill prevention and response plans and adverse weather plans.

    j. The Dischargers maintain a Biosolids Spill Response Plan, a copy of which will be maintained in all vehicles transport biosolids.

Other Regulatory Considerations

52. Pursuant to Water Code section 106.3, subdivision (a), it is "the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." Although this Order is not necessarily subject to Water Code section 106.3 because it does not revise, adopt or establish a policy, regulation or grant criterion (see section 106.3, subdivision (b)), it nevertheless promotes that policy by requiring discharges to meet MCLs designed to protect human health and ensure that water is safe for domestic use.

53. Based on the threat and complexity of the discharge, the Facility is classified as 2B, as defined below:

    a. Category 2 threat to water quality: "Those discharges of waste that could impair the designated beneficial uses of the receiving water, cause short-term violations of water quality objectives, cause secondary drinking water standards to be violated, or cause a nuisance."

    b. Category B complexity, defined as: "Any discharger not included [as Category A] that has physical, chemical, or biological treatment systems (except for septic systems with subsurface disposal) or any Class 2 or Class 3 waste management units."

54. California Code of Regulations, title 27 (Title 27), prescribes requirements for the treatment, storage, processing, and disposal of solid waste. However, discharges regulated under this Order are exempt from Title 27 requirements insofar as the discharges involve soil amendments (i.e., "[u]se of nonhazardous decomposable waste as a soil amendment pursuant to applicable best management practices…") and reuse (i.e., "[r]ecycling or other use of materials salvaged from waste, or produced by waste treatment, such as scrap metal, compost, and recycled chemicals…"). (See Title 27, section 20090, subdivisions (f), (h).)

55. The statistical data analysis methods set forth in the EPA's 2009 *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (Unified Guidance) are appropriate for determining whether discharges comply with Groundwater Limitations in section F of this Order. However, other analytical methods may be appropriate as well.

56. Water Code section 13267, subdivision (b)(1) provides as follows:

> [T]he regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region … shall furnish, under penalty of perjury, technical or monitoring program reports which the board requires. The burden, including costs of these reports, shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.

57. The technical reports required under this Order, as well as per the separately-issued Monitoring and Reporting Program (MRP) Order No. R5-2019-0002, are necessary to ensure compliance with the WDRs prescribed herein. The Dischargers own and/or operate the Facility with biosolids discharges that are regulated under this Order.

58. In connection with the prior CUP (2004-UPB-0427), the County of Sacramento performed an Initial Study and adopted a Negative Declaration dated 12 October 2005, under the California Environmental Quality Act (CEQA), Public Resources Code section 21000 et seq. In adopting its Negative Declaration, the County of Sacramento determined that issuing three separate land use permits for the application of biosolids on approximately 3,000 acres (collectively, "Silva Ranch Biosolids Land Application Use Permit") would not have a significant effect on the environment, and that an environmental impact report need not be prepared.

59. The Dischargers' prior CUP (2004-UPB-0427) expired on 31 December 2017. The Dischargers are in the process of renewing their CUP, and to the extent that any subsequent CUP prescribes any nuisance abatement requirements that are more stringent than those set forth in this Order, those more stringent requirements shall be controlling. In other words, this Order shall not be interpreted as authorizing the violation of any conditions in a CUP issued by the County of Sacramento. Conversely, nothing in any subsequently-issued CUP shall be interpreted as authorizing a violation of the WDRs set forth in this Order.

60. To ensure protection of waters of the state, this Order places additional requirements on the continuance of an existing operation involving the discharge of waste. Accordingly, the adoption of this Order is exempt from the provisions of CEQA pursuant to section 15301 of the CEQA Guidelines (Cal. Code Regs., tit. 14, section 15000 et seq.).

61. Federal regulations in 40 C.F.R. part 503 (Standards for the Use or Disposal of Sewage Sludge) establish management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria. Although the Central Valley Water Board is using 40 C.F.R. part 503 as guidelines for the purposes of this Order, the Central Valley Water Board is not the implementing agency for these regulations. Accordingly, the Dischargers may have separate and/or additional compliance, reporting and permitting responsibilities with respect to the EPA.

62. Pursuant to Water Code section 13263, subdivision (g), the ability to discharge waste is a privilege, not a right, and the adoption of this Order does not create a vested right to continue any discharges.

Public Notice

63. All the above and the supplemental information and details in the attached Information Sheet, which is incorporated by reference herein, were considered in establishing the following conditions of discharge.

64. The Dischargers and interested agencies and persons have been notified of the Central Valley Water Board's intent to prescribe WDRs for this discharge, and have been provided an opportunity to submit written comments and an opportunity for a public hearing.

65. All comments pertaining to the discharge were heard and considered in a public hearing.

IT IS HEREBY ORDERED that Order Nos. 95-064 and 98-023 and MRP No. R5-2007-0807 are rescinded; and that, pursuant to Water Code sections 13263 and 13267, Synagro West, LLC and Gary Silva Sr. (Dischargers), their agents, successors, and assigns, to meet the provisions contained in Division 7 of the Water Code, and regulations promulgated thereunder, shall comply with the following requirements.

A. Discharge Prohibitions

1. **Effective immediately**, until approval of a 30-Day Grazing Restriction Assessment Report (see section G.2 of this Order), cattle and other animals are prohibited from grazing on any field where biosolids have been applied within the preceding 60 days (if daytime temperatures average 50°F or higher) or 90 days (if daytime temperatures are below 50°F).

2. Discharge of biosolids at a location or in a manner different from that described in the Findings is prohibited.

3. The discharge of biosolids shall not cause or threaten to cause "pollution," as defined per Water Code section 13050, subdivision (*l*)(1).

4. The application of any material resulting in a violation of the Safe Drinking Water and Toxic Enforcement Act is prohibited. (See Health & Safety Code, section 25249.5.)

5. The storage, transport, or application of biosolids shall not cause a "nuisance," as defined per Water Code section 13050, subdivision (m).

6. Biosolids shall not be discharged from the Facility's storage areas or designated LAAs to: adjacent land areas not regulated by this Order; any onsite surface waters; or any surface water drainage course.

7. Storm water and/or irrigation water runoff shall not flow from designated LAAs within 30 days of application of biosolids, unless vegetation surrounding the designated LAA, and along the path of runoff, provides at least 33 feet of untrimmed grass (or similar vegetation) sufficient to prevent the transportation of biosolids with the storm water and/or irrigation water away from the application site.

8. Biosolids shall not be discharged or applied at rates exceeding the nitrogen requirements of the vegetation, or at rates degrading of groundwater quality.

9. The application of "hazardous waste" is prohibited. (See Cal. Code Regs., tit. 22, section 66261.1 et seq.)

10. Biosolids shall not be discharged if constituent concentrations, in milligrams per kilogram (mg/kg) dry weight (See 40 C.F.R. section 503.13 Table 1), exceed the following:

Constituent	Ceiling Concentration, mg/kg dry weight
Arsenic	75
Cadmium	85
Copper	4,300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7,500

11. Biosolids shall not be applied to designated LAAs with frozen or water-saturated ground; or applied during periods of precipitation in a manner that induces runoff from the Facility.

12. Biosolids shall not be applied in portions of designated LAAs that are subject to gully erosion or washout offsite.

13. Until approval of a Conditional Biosolids Application Site Report, per section G of this Order, biosolids shall not be applied to portions within a designated LAA with slopes exceeding 10 percent is prohibited. (See Finding No. 27 [Fields containing slopes in excess of 10 percent].)

14. Compostable material/green material (and other similar materials) shall not be applied to any field designated as an LAA to receive biosolids.

B. Discharge Specifications

1. Biosolids shall be applied exclusively to designated LAAs within Silva Ranch I and Silva Ranch II.

2. Waste constituents, including those associated with biosolids, shall not be released, discharged, or placed in a location or manner resulting in a violation of the Groundwater Limitations set forth in section F of this Order.

3. Prior to application, biosolids shall remain confined within transportation equipment and containers and staging/storage sites.

4. Public contact with biosolids in designated LAAs shall be prevented through such means as fences, signs or other acceptable alternatives.

5. Objectionable odors shall not be perceivable beyond the limits of the Facility's boundaries at intensities creating or threatening to create nuisance conditions.

6. All staging areas, storage sites, and designated LAAs shall be designed, constructed, operated and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

7. All storm water runoff retention ponds shall be designed to collect runoff falling on the drainage area from a 24-hour storm with a 25-year return frequency.

8. All storm water runoff retention ponds shall be emptied, by applying the stored water as irrigation to seeded biosolids application areas:

    a. At least once prior to **15 September of each year**; and

    b. During the **rainy season (15 October to 15 April),** as frequently as conditions allow to maintain maximum containment capabilities.

9. All open containment structures (e.g., storm water retention ponds) shall be managed to prevent breeding of mosquitoes, specifically:

    a. An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface;

    b. Weeds shall be minimized through control of water depth, harvesting, or herbicides;

    c. Dead algae, vegetation, and debris shall not accumulate on the water surface; and

    d. Dischargers shall consult and coordinate with the local Mosquito Abatement District to minimize the potential for mosquito breeding as needed to supplement the above measures.

10. Newly-constructed or rehabilitated berms or levees (excluding internal berms separating ponds or controlling flow of water within a pond) shall be designed and constructed under the supervision of a California Registered Civil Engineer.

11. Wastewater contained in any unlined pond shall not have a pH of less than 6.0, or greater than 9.0.

12. All biosolids for land application shall comply with the applicable pathogen reduction standards set forth in 40 C.F.R. section 503.32. Additionally, all biosolids meeting “Class A” standards shall not have a maximum fecal coliform concentration greater than 1,000 most probable number (MPN) per gram of biosolids; or the density of salmonella, sp.[1] shall not be greater than three MPN per four (4) grams.

13. Dischargers shall implement one of the available vector attraction reduction requirements listed in 40 C.F.R. section 503.33.

[1] As determined by a U.S. EPA approved method other than a method in “Standard Methods for the Examination of Water and Wastewater” 18th Ed., 1992, American Public Health Assn., 1015 15th Street NW Washington, DC 2005; and other than the method found in Kenner, B.A. and H.P. Clark, “Detection and Enumeration of Salmonella and Pseudomonas aeruginosa,” Journal of Water Pollution Control Federation, Vol. 46, No. 9, September 1974, pp. 2163-2171. Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314.

14. Biosolids with less than 75 percent moisture shall not be applied during wind gusts of over 25 miles per hour (as determined by the nearest calibrated regional weather station [e.g., airport, CIMS]).

15. If biosolids are to be incorporated into soil, they shall be incorporated via disking:

    a. Within 24 hours after application in arid areas;

    b. Within 24 hours after application in non-arid areas between 1 May and 31 October, and

    c. Within 48 hours after application in non-arid areas between 1 November and 30 April.

16. Prior to biosolids application to ground surfaces with slopes greater than 10 percent (see Finding No. 27), and subject to the prohibition in section A.14 of this Order, Dischargers shall submit a Conditional Biosolids Application Site Report in accordance with section G of this Order.

17. Structures conveying tail water shall be designed and maintained to minimize any field erosion. Tail water structures shall be boarded and wrapped with plastic prior to any biosolids application but removed after biosolids incorporation into the soil.

18. "Class B" biosolids (see 40 C.F.R. section 503.32) shall comply with the following.

    a. The discharge of tail water or field runoff is prohibited within 30 days after application of biosolids for areas where biosolids have not been incorporated into the soil, and where there is not a minimum of 33 feet[2] of un-mowed grass or similar vegetation bordering the application area and along the path of runoff to prevent movement of biosolids particles from the application site.

    b. For **at least 12 months** after application of biosolids, grazing of milking animals used for producing unpasteurized milk for human consumption is prevented, if the field is used as pasture.

    c. After an application of biosolids in any field, Dischargers shall ensure the following site restrictions (See 40 C.F.R. section 503.32(b)(5)):

        i. For **at least 30 days**, food crops, feed crops, and fiber crops, whose edible parts do not touch the surface of the soil, shall not be harvested.

[2] For sites where the topography slopes are greater than 10 percent, the minimum width of vegetative border shall be proposed in accordance to Discharge Specification B.16 above.

ii. For **at least 30 days**, public access to the site with a low potential for public exposure is restricted.

iii. For **at least 12 months**, public access to the site with a high potential for public exposure is restricted.

iv. For **at least 12 months**, turf shall not be harvested if the harvested turf is placed on land with a high potential for contact by the public, as defined in 40 C.F.R. section 503.11.

v. For **at least 14 months**, food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested.

vi. For **at least 20 months**, food crops with harvested parts below the land surface when applied biosolids remain exposed on the surface for more than 4 months (prior to incorporation into the soil), shall not be harvested.

vii. For **at least 38 months**, food crops with harvested parts below the land surface when applied biosolids remain exposed on the surface for less than 4 months (prior to incorporation into the soil), shall not be harvested.

19. Until the appropriate technical report is approved pursuant to section G of this order, for **at least 60 days** after application of biosolids, domesticated animals shall not be grazed, if the daytime temperatures average exceeds 50 degrees Fahrenheit (otherwise a **90 day period** shall apply).

20. Subject to any larger setback requirements imposed by a local agency for the protection of the environment and public health, all Facility staging, storage, and biosolids application areas shall maintain the following setbacks distances:

    a. **25 feet** from the edge of the Silva Ranch property line;

    b. **500 feet** from any domestic water supply wells or occupied dwellings;

    c. **50 feet** from any public roads and occupied onsite residences; and

    d. **100 feet** from the high water mark of Laguna and Hadselville Creeks and their tributaries, and any ponds, lakes, wetlands, underground aqueducts, or vernal pools.

21. Biosolids shall be staged, stored and applied in accordance with the approved Biosolids Management Plan, and in a manner that controls and minimizes windblown material (e.g., dust) and biosolids movement offsite.

C. Mass Loading Limitations

1. Biosolids shall not be applied at rates exceeding the agronomic rate for nitrogen for the crop being grown.

2. Biosolids shall not be applied in amounts exceeding the risk-based cumulative loading rates (adjusted to account for background metals concentrations) as defined below:

$$BC = CP - 1.8(BS)$$

***Where*:** **BC** = Background Adjusted Cumulative Loading Rate (lb/ac)

CP = Cumulative Pollutant (CP) Loading Rate (lb/ac) (See 40 C.F.R. section 503.13 Table 2)

BS = Actual Background Site Soil Concentration (mg/kg)

And where the values for CP for each metal are specified below:

Pollutant	Cumulative Pollutant (CP) Loading Rate (lbs/ac)
Arsenic	36
Cadmium	34
Copper	1,336
Lead	267
Mercury	15
Molybdenum	16
Nickel	374
Selenium	89
Zinc	2,494

For each field receiving biosolids, compliance is determined by comparing the cumulative loading rates for each pollutant BC.

D. Land Application Area Specifications

1. Dischargers shall apply biosolids in accordance with their operative Biosolids Management Plan.

2. All fields within LAAs designated for receiving biosolids shall be planted with durum wheat, sudan grass, or similar crops.

3. Biosolids may be applied to LAAs with slopes exceeding 10 percent only if each of the following conditions are met:

   a. The Conditional Biosolids Application Site Report is approved (see section G.3 of this Order);

   b. The soil depth is sufficient to support the crops to be planted at the LAA;

c. The slope will allow safe operation of spreading and tilling equipment;

d. The slope can be tilled, planted, and grazed without causing or exacerbating soil erosion; and

e. The Dischargers are implementing the erosion control plan submitted as part of an approved Conditional Biosolids Application Site Report.

4. Public access to the LAAs shall be restricted for **at least 30 days** after biosolids application, based on the low potential for public exposure.

5. Biosolids application to the LAAs shall not be performed during rainfall or ground saturation.

6. Biosolids shall not be applied to any LAAs within a designated 100-year flood plain between **15 October and 15 April**.

7. Discharge of storm water runoff from LAAs to other areas within Silva Ranch or surface water drainage courses (offsite or onsite) is prohibited, except as allowed by Discharge Prohibition A.7.

8. Storm water runoff from LAAs shall be captured and recycled for irrigation, or allowed to percolate within designated LAAs.

9. Public contact with biosolids LAAs shall be controlled using fences, signs, and other appropriate means.

E. Biosolids Storage & Transportation Specifications

For the purposes of this Order, biosolids are considered “staged” if briefly placed on the ground solely to facilitate transfer of the biosolids between transportation and application equipment. Biosolids are “stored” if they are: (a) either placed on the ground, or kept in an offloaded non-mobile container; (b) at the application site or an intermediate location away from the generator/processing site; and (c) for more than 48 hours. Storage sites holding biosolids between two and seven consecutive days are considered “short-term,” whereas storage sites holding biosolids for more seven consecutive days are considered “long-term.”

1. Under no circumstances shall biosolids with less than 15 percent solids be kept at any storage facility prior to application.

2. Biosolids with “free liquids” shall not be placed on the ground prior to application at the designated LAA (excluding equipment cleaning operations).

3. Biosolids shall not be stored for more than seven (7) consecutive days prior to application.

4. Biosolids storage sites shall be located, designed, maintained and operated to:

a. Restrict public access to “Class B” biosolids;

b. If storing biosolids between 15 October and 15 April, prevent washout or inundation from a storm or flood with a return frequency of 100 years;

c. Contain all storm water falling on the biosolids storage area during a 100-year rainfall year; and

d. Minimize leachate generation and erosion.

5. Biosolids storage sites shall be operated in accordance with the approved Short-Term Biosolids Storage Plan and Biosolids Management Plan.

6. All biosolids materials shall be transported:

a. In covered vehicles capable of containing transported biosolids;

b. If capable of generating “free liquids,” inside sealed (leak-proof) containers and/or vehicles;

c. By properly-trained drivers and personnel who are alerted as to the nature of their biosolids cargo, and provided with a copy of the approved Biosolids Spill Response Plan;

d. Along routes avoiding residential areas to the extent possible, and if residential routes are unavoidable, during daylight hours only;

7. Dischargers shall immediately remove and relocate any biosolids stored or applied on site in violation of this Order.

F. Groundwater Limitations

Release of waste constituents from any portion of the application site shall not cause groundwater to:

1. Exceed a total coliform organism level of 2.2 MPN/100 mL over any seven-day period.

2. For constituents identified in Title 22, contain constituents in concentrations that exceed either the Primary or Secondary MCLs established therein.

3. Contain taste or odor-producing constituents, toxic substances, or any other constituents in concentrations that causing nuisances or adversely affecting beneficial uses.

G. Provisions

The following reports shall be submitted pursuant to Water Code 13267, and shall be prepared as described in section G.6:

1. **Discharge Specification Compliance Work Plan**

Within **30 days of this Order**, Dischargers shall submit for Central Valley Water Board staff review a work plan describing the methods by which they will demarcate and distinguish between designated LAAs to comply with the Discharge Specifications set forth in section B of this Order.

2. **30-Day Grazing Restriction Assessment Report**

a. If Dischargers intend to permit cattle and other animals to graze on a field that has received biosolids for application within the preceding 60 days (if average daytime temps. 50°F or higher) or within the preceding 90 days (otherwise), Dischargers shall submit a 30-Day Grazing Restriction Assessment Report to the Executive Officer. This report shall provide a technical justification for the U.S. EPA's minimum 30-day restriction, set forth in 40 C.F.R. part 503, as being adequately protective of land productivity and animal health (without any additional waiting periods for biodegradation).

b. Regarding to land productivity, the report shall include the following:

i. A certified soil scientist or agronomist's evaluation of the potential effects of grazing on land productivity (e.g., potential nutrient imbalances, metal phytotoxicity, excessive salinity, etc.), with consideration of:

(a) The nature of LAA soils at the Facility;

(b) Biosolids characterization data;

(c) Current biosolids application rates at the Facility;

(d) Current soil management and grazing practices at the Facility;

(e) The need to preserve short-term and long-term land productivity; and

(f) The information in the following Table.

Limitation to Land Application			
Parameter	**Slight**	**Moderate**	**Severe**
Cation exchange capacity [a] (avg. meq/100g, 0-20" depth)	> 15	10 - 15	< 10
pH [b] (avg. 0-20" depth)	> 6.5	5.0 – 6.5	< 5.0
Erosion hazard rating [c]	None to Slight [d]	Moderate	High to Severe [e]

a. Cation exchange capacity limits based on professional judgement. b. pH limits based on U.S. Department of Agriculture (1993). c. Erosion hazard limits based on professional judgment. d Slopes of 3% or less are deemed to have only a "slight" erosion hazard rating. e Under no circumstances shall grazing be permitted in an area associated with a "severe" erosion hazard rating.

ii. A satisfactory demonstration, by the certified soil scientist or agronomist, that the 30-day period set forth in 40 C.F.R. part 503 is adequately protective of land-productivity.

iii. Either an available Erosion Hazard Reports (derived from USDA soil survey reports) or, if no such reports are available, a Soils Survey Report prepared by a qualified soil scientist, using NCRS Guidelines to determine the erosion hazard of LAA slopes over 3 percent.[3]

c. Regarding animal health, the report shall include an evaluation from a qualified animal health professional (i.e., a veterinarian or similarly-qualified person) with experience in epidemiology, toxicology and the medical ecology of infectious diseases potentially transferred between livestock, wildlife and humans. This evaluation shall demonstrate that:

i. The 30-day waiting period under 40 C.F.R. part 503 is sufficient to prevent animal toxicity and other potential health risk exposures to pathogens and synthetic organic compounds (SOCs), which would not persist significantly longer than 30 days after biosolids application; and

ii. There is a low potential for increased incidence of disease resulting from ingestion of pathogenic organisms in crops grown on Facility LAAs or from animals fed with crops grown on Facility LAAs.

3. **Conditional Biosolids Application Site Report**

a. **By 1 April 2019**, if biosolids are applied to ground surfaces having a slope greater than 10 percent, the Discharger shall submit for review and verification of the requirements specified below.

b. The report shall include an Erosion Control Plan that:

[3] At sites having a "moderate" limitation, biosolids may be applied only where the crop is not known to be particularly sensitive to metals and nutrient imbalances or is not known to be bioaccumulative of heavy metals. Sites having a "severe" limitation are prohibited. Sites with a slope of greater than 20 percent shall not accept biosolids unless those sites will be immediately covered by sod or a sufficient mulch cover to control erosion.

i. Describes site conditions (within an appropriate-sized range of slopes, e.g., 12 to 15 percent) that will support the application and full containment of biosolids without soil erosion; and

ii. Specifies the application practices and management practices to be implemented, which will ensure full containment of biosolids at the site of application, and prevent soil erosion.

c. The report shall be prepared by one of the following professionals:

i. Certified Soil Scientist;

ii. Certified Agronomist;

iii. Registered Agricultural Engineer; or

iv. Registered Civil Engineer, or a Certified Professional Erosion and Sediment Control Specialist.

4. **Revised Biosolids Management Plan**

By 1 May 2019, Dischargers shall submit a Revised Biosolids Management Plan. The Biosolids Management Plan dated 1 June 2017 shall be updated to include the following:

a. Description of the measures and controls implemented to prevent or minimize windblown material (i.e. dust) and biosolids movement offsite during the transportation, application, and storage of biosolids, specifically the handling of biosolids with a moisture content less than 50 percent.

b. Animal grazing management plan that describes measures and controls implemented to prevent transfer of biosolids to adjacent creeks via the grazing animals' hooves and skin,

5. **Construction of "Long-Term" Storage Site**

a. If a "long-term" storage facility is to be constructed (see definition in section E above), Dischargers shall submit a new RWD that includes the design of the biosolids storage facility in accordance with Class II surface impoundment or waste pile standards contained in Chapter 15, a construction management plan and schedule, and a Long-Term Biosolids Storage Plan.

b. The storage facility shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years. The storage facility shall be designed and maintained to contain all storm water falling on the biosolids storage area during a 100-year rainfall year.

6. **General Requirements for Technical Reports**

   a. In accordance with Business and Professions Code sections 6735, 7835, and 7835.1, engineering and geologic evaluations and judgments shall be performed by or under the direction of registered professionals competent and proficient in the fields pertinent to the required activities. All technical reports specified herein that contain work plans for investigations and studies, that describe the conduct of investigations and studies, or that contain technical conclusions and recommendations concerning engineering and geology shall be prepared by or under the direction of appropriately qualified professional(s), even if not explicitly stated. Each technical report submitted by the Discharger shall bear the professional's signature and stamp.

   b. Dischargers shall submit the technical reports and work plans required by this Order for consideration by the Executive Officer and incorporate any Executive Officer comments in a timely manner, as appropriate under the circumstances.

   c. Unless expressly stated otherwise in this Order, the Discharger shall proceed with all work required by the foregoing provisions by the due dates specified.

7. Dischargers shall comply with the separately-issued Monitoring and Reporting Program No. R5-2019-0002 (incorporated herein), and any subsequent revisions thereto by the Executive Officer. The submittal dates of Discharger self-monitoring reports shall be no later than the submittal date specified in the MRP.

8. Except as otherwise directed herein, Dischargers shall comply with the Central Valley Water Board's Standard Provisions and Reporting Requirements for WDRs dated 1 March 1991, which is attached hereto and incorporated herein. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

9. Dischargers shall comply with all conditions of this Order, including timely submittal of technical and monitoring reports. On or before each report due date, Dischargers shall submit the specified document to the Central Valley Water Board or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, then Dischargers shall state the reasons for such noncompliance and provide an estimated date of compliance. Dischargers shall notify the Central Valley Water Board in writing when it returns to compliance with the time schedule. Violations may result in enforcement action, including Central Valley Water Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

10. Dischargers shall continually properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory

controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by the Dischargers when the operation is necessary to achieve compliance with the conditions of this Order.

11. Dischargers shall use the best practicable cost-effective control technique(s) including proper operation and maintenance, to comply with this Order.

12. As described in the Standard Provisions, Dischargers shall report promptly to the Central Valley Water Board any material change or proposed change in the character, location, or volume of the discharge.

13. If Dischargers report toxic chemical release data to the State Emergency Response Commission (SERC) pursuant to section 313 of the Emergency Planning and Community Right to Know Act (42 U.S.C. section 11023), Dischargers shall also report the same information to the Central Valley Water Board within 15 days of the report to the SERC.

14. **At least 90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or recycling areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, Dischargers shall notify the Central Valley Water Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

15. In the event of any change in control or ownership of the biosolids application areas, Dischargers shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

16. To assume operation as “Discharger” under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Central Valley Water Board, and a statement. The statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. If approved by the Executive Officer, the transfer request will be submitted to the Central Valley Water Board for its consideration of transferring the ownership of this Order at one of its regularly scheduled meetings.

17. A copy of this Order (including the Information Sheet and all attachments), the separately-issued MRP R5-2019-0002 (with subsequent amendments thereto), and the Standard Provisions shall be kept at the discharge facility for reference by operating personnel, who shall be familiar with their contents.

18. The Central Valley Water Board will review this Order periodically and will revise requirements when necessary.

If, in the opinion of the Executive Officer, either Discharger fails to comply with the provisions of this Order, the Executive Officer may refer this matter to the Attorney General for judicial enforcement, may issue a complaint for administrative civil liability, or may take other enforcement actions. Failure to comply with this Order may result in the assessment of Administrative Civil Liability of up to $10,000 per violation, per day, depending on the violation, pursuant to the Water Code, including sections 13268, 13350 and 13385. The Central Valley Water Board reserves its right to take any enforcement actions authorized by law.

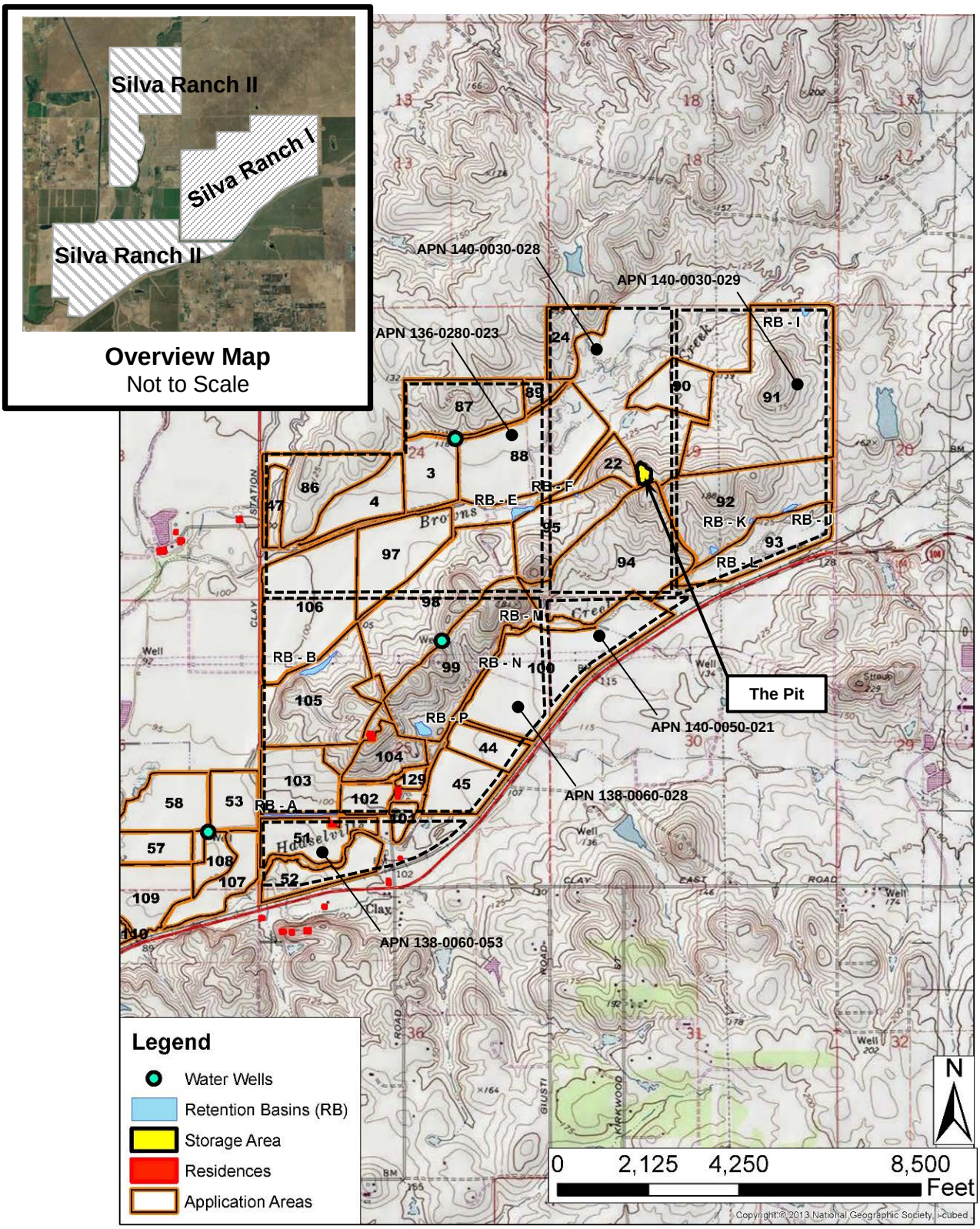
Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board for administrative review in accordance with Water Code section 13320, and California Code of Regulations, title 23, section 2050 et seq. To be timely, the State Water Board must receive the petition by 5pm on the 30th day after the date of this Order, except that if the 30th day falls on a Saturday, Sunday or State Holiday, the petition must be received by the State Water Board by 5pm on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet (at the address set forth below), or will be provided upon request.

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

I, PATRICK PULUPA, Executive Officer, do hereby certify that the foregoing is a full and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region on 7 February 2019.

- original signed by -

PATRICK PULUPA, Executive Officer



LEGEND

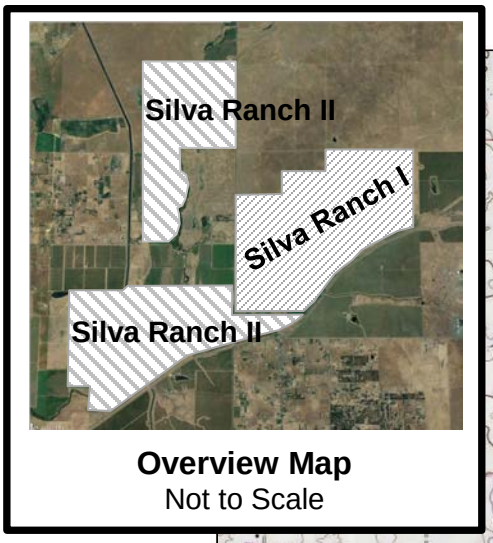
LAA Land Application Areas

APN Boundary

LOCATION MAP

SYNAGRO/SILVA RANCH I
BIOSOLIDS APPLICATION SITES
SACRAMENTO COUNTY

approx. scale
1" = 2,000'



Overview Map
Not to Scale

LEGEND

LAA Land Application Areas

APN Boundary

LOCATION MAP
SYNAGRO/SILVA RANCH II
BIOSOLIDS APPLICATION SITES
SACRAMENTO COUNTY

approx. scale
1" = 2,000'

BIOSOLIDS MONITORING RESULTS

Generator Information

Owner Name _____

Facility Name _____

RWQCB Region _____

County _____

NPDES Permit No. _____

WDRs Order No. _____

Project Information

Project Type _____ Pond cleanout _____ Continuous wasting/drying
_____ Drying bed cleanout _____ Stockpile Disposal

Estimated Project Duration _____ to _____

Estimated Total Mass [4] _____ dry tons this calendar year

Required EPA Certification Frequency _____

Stabilization Method _____

Pathogen Reduction Method [8] _____

Vector Attraction Reduction Option [9] _____

Sampling Information

[1] Lab Sample ID						
[2] Sampler's Sample ID						
[3] Sampler						
Sample Date						
Analysis Date						

Analytical Result	**Wet Basis**	**Dry Basis**	**Wet Basis**	**Dry Basis**	**Wet Basis**	**Dry Basis**	**Wet Basis**	**Dry Basis**	**Wet Basis**	**Dry Basis**	**Wet Basis**	**Dry Basis**
Fecal coliform, MPN/g												
Total solids, percent												
Total nitrogen, mg/Kg												
Ammonia nitrogen, mg/Kg												
Nitrate nitrogen, mg/Kg												
Total phosphorus, mg/Kg												
Total potassium, mg/Kg												

Nitrogen Loading Rate

[5] Mineralization rate, percent												
[6] Volatilization factor, percent												
[7] Units conversion factor												
[10] PAN, lbs/ton												

Footnotes

[1] Sample ID assigned by the analytical laboratory.

[2] Sample ID from chain of custody form.

[3] Specify whether sampling was performed by Synagro or generator/generator's contractor.

[4] Estimated mass to be land applied at this site.

[5] Equals 20% for anerobically digested; 30% for aerobically digested; 25% for aerobically/anaerobically digested; 40% for lime-stabilized; 10% for composted.

[6] Equals 50% for surface application; 100% for subsurface injection.

[7] Equals 0.002 lbs/ton per mg/Kg.

[8] Specify in detail. For example: "Class B - anaerobic digestion for ___ to ___ days at ___ to ___ degrees F (range for past month)".

[9] Specify in detail. For example: "Option 1 - volatile solids reduction greater than 38%; VS in = ___, VS out = ___".

[10] Equals (mineralization rate * Org N concentration) + (volatilization rate * Ammonia concentration) + (nitrate concentration) * (0.0023 unit conversion)

Sampling Information

[1] Lab Sample ID			
[2] Sampler's Sample ID			
[3] Sampler			
Sample Date			
Analysis Date			

Metals Analyses

	Wet Basis	Dry Basis	Wet Basis	Dry Basis	Wet Basis	Dry Basis	Regulatory Limits				
							40 CFR 503 (dry wt. basis)		22 CCR (wet wt. basis)		
							mg/Kg	mg/Kg	mg/L	mg/L	mg/Kg
							Table 1	Table 3	STLC	10 x STLC	TTLC
Arsenic, mg/Kg							75	41	5	50	500
Cadmium, mg/Kg							85	39	1	10	100
Copper, mg/Kg							4,300	1,500	25	250	2,500
Lead, mg/Kg							840	300	5	50	1,000
Mercury, mg/Kg							57	17	0.2	2.0	20
Molybdenum, mg/Kg							75		350	3,500	3,500
Nickel, mg/Kg							420	420	20	200	2,000
Selenium, mg/Kg							100	36	1	10	100
Zinc, mg/Kg							7,500	2,800	250	2,500	5,000
Semi-volatile organic compounds, detections only (mg/Kg)											
PCBs/aldrin/dieldrin, detections only (mg/Kg)											

OWNER NAME _____
FACILITY NAME _____

MONTHLY FIELD MONITORING RESULTS

Month _____ **Year** _____

Field Information

Field ID No.				
Gross Acreage				
Net Acreage				
Crop				
Anticipated Planting Date				
Anticipated Harvest Date				
Anticipated Irrigation Date(s)				
Next Allowable Runoff Date				

Source Information

Source ID Code	Owner Name	Facility Name

Biosolids Application Information (tonnage per field)

Day of Month	Source ID	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.	Wet Wt.	Dry Wt.
1									
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
Total Application (tons)									
Application Rate (tn/ac)									
PAN Application (lb)									
PAN Rate (lb/ac)									
Phosphorus Rate (lb)									
Phosphorus Rate (lb/ac)									
Potassium Rate (lb)									
Potassium Rate (lb/ac)									

ANNUAL FIELD ACTIVITIES SUMMARY

Year ________ **Field ID Number** ________________

Gross Acreage ____________
Net Acreage ____________
Crop ____________
Actual Planting Date ____________
Actual Harvest Date ____________

Month	Date	Biosolids Applied		PAN Applied tn/ac	P Applied tn/ac	K Applied tn/ac	Irrigation		Precipitation inches	Runoff Control Status
		wet tn	dry tn				gallons	inches		
Totals										

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM R5-2019-0002

FOR
SYNAGRO WEST, LLC AND GARY SILVA, SR
SILVA RANCH BIOSOLIDS LAND APPLICATION SITES
SACRAMENTO COUNTY

This Monitoring and Reporting Program (MRP) is issued pursuant to Water Code section 13267. Dischargers shall not implement any changes to this MRP unless and until the Central Valley Water Board adopts, or the Executive Officer issues, a revised MRP.

All samples shall be representative of the volume and nature of the discharge or matrix of material sampled. Except as specified otherwise in this MRP, grab samples will be considered representative of water, wastewater, soil, solids/sludges, and groundwater.

The time, date, and location of each sample shall be recorded on the sample chain of custody form. All analyses shall be performed in accordance with the Standard Provisions and Reporting Requirements for Waste Discharge Requirements dated 1 March 1991 (Standard Provisions). Field test instruments (such as those used to measure pH, electrical conductivity, dissolved oxygen, wind speed, and precipitation) may be used provided that:

1. The operator is trained in proper use and maintenance of the instruments;

2. The instruments are field calibrated at the frequency recommended by the manufacturer;

3. The instruments are serviced and/or calibrated by the manufacturer at the recommended frequency; and

4. Field calibration reports are submitted as described in the “Reporting” section of the MRP.

Laboratory analytical procedures shall comply with the methods and holding times specified in the following (as applicable to the medium to be analyzed):

- *Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater* (EPA);
- *Test Methods for Evaluating Solid Waste* (EPA);
- *Methods for Chemical Analysis of Water and Wastes* (EPA);
- *Methods for Determination of Inorganic Substances in Environmental Samples* (EPA);
- *Standard Methods for the Examination of Water and Wastewater* (APHA/AWWA/WEF); and
- *Soil, Plant and Water Reference Methods for the Western Region* (WREP 125).

Approved editions shall be those that are approved for use by the United States Environmental Protection Agency or the California Department of Public Health's Environmental Laboratory Accreditation Program (ELAP). The Dischargers may propose alternative methods for approval by the Executive Officer. Where technically feasible, laboratory reporting limits shall be lower than concentrations that implement applicable water quality objectives/limits for the constituents to be analyzed.

A glossary of terms used in this MRP is included on the last page.

BIOSOLIDS MONITORING

Biosolids from each generator shall be sampled and analyzed as follows. Generator information shall include at a minimum, facility, mailing address, facility contact person, level of pathogen treatment ("Class A" or "Class B"), and description of vector attraction reduction achievement. Small generators are those that generate and/or land apply less than 350 dry tons per year (either during a cleanout project or by continuous wasting and disposal). Large generators are all others. Results for all chemical constituents shall be reported in mg/Kg on a dry weight basis. Composite samples may be used in lieu of grab samples if all required sample holding times are met.

For Generators Using Continuous Sludge Wasting and Disposal and for Pond Cleaning Projects:

Constituents	Sample Type	Units	Sampling Schedule		Reporting Frequency
			Small Generator	Large Generator	
Metals (total) [1]	Grab	mg/Kg	1 per 6 months	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
PCB aroclors, aldrin, dieldrin [2]	Grab	mg/Kg	1 per 6 months	1 per 500 dry tons; minimum of 1 per 6 months	Monthly [4]
Semi-volatile Organic [3]	Grab	mg/Kg	1 per 6 months	1 per 500 dry tons; minimum of 1 per 6 months	Monthly [4]
Percent Moisture [5]	Calculated	%	1 per quarter	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
Total Nitrogen	Grab	mg/Kg	1 per quarter	1 per 200 dry tons; minimum of 1 per month	Monthly[4]
Ammonia Nitrogen	Grab	mg/Kg	1 per quarter	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
Nitrate Nitrogen	Grab	mg/Kg	1 per quarter	1 per 200 dry tons; minimum of 1 per month	Monthly [4]

Constituents	Sample Type	Units	Sampling Schedule		Reporting Frequency
			Small Generator	Large Generator	
Total Phosphorus	Grab	mg/Kg	1 per quarter	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
Total Potassium	Grab	mg/Kg	1 per quarter	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
Total Solids	Grab	%	1 per quarter	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
Fecal Coliform [6]	Grab	MPN/gram	1 per quarter	1 per 200 dry tons; minimum of 1 per month	Monthly [4]

Notes:

1 Include at least the following metals: arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc.
2 Using SW 846 Method 8080.
3 Using EPA Method 8270.
4 Include analytical data in the monthly monitoring report for the month in which monitoring occurred. For months in which no monitoring takes place, the Monthly Monitoring Report shall so state.
5 The result of subtracting the percent total solids from 100.
6 Sampling and analysis for Class A biosolids only.

If, for a particular biosolids generator, it can be demonstrated that the biosolids material exhibits consistent chemical character over a period of at least two years, the applicable sampling schedule may be reduced upon written approval of a Biosolids Monitoring Data Summary Report. The report shall contain tabulated analytical data summaries for all biosolids monitoring data for the previous three years.

For Generators with Stockpile Disposal Projects:

Constituents	Sample Type	Unit	Number of Samples	Reporting Frequency
Metals (total) [1]	Composite	mg/Kg	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
PCB aroclors, aldrin, dieldrin [2]	Composite	mg/Kg	1 per 500 dry tons; minimum of 1 per 6 months	Monthly [4]
Semi-volatile Organic [3]	Composite	mg/Kg	1 per 500 dry tons; minimum of 1 per 6 months	Monthly [4]
Percent Moisture [5]	Calculated	%	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
Total Nitrogen	Composite	mg/Kg	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
Ammonia Nitrogen	Composite	mg/Kg	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
Nitrate Nitrogen	Composite	mg/Kg	1 per 200 tons; minimum of 1 per month	Monthly [4]

Constituents	Sample Type	Unit	Number of Samples	Reporting Frequency
Total Phosphorus	Composite	mg/Kg	1 per 200 tons; minimum of 1 per month	Monthly [4]
Total Potassium	Composite	mg/Kg	1 per 200 tons; minimum of 1 per month	Monthly [4]
Total Solids	Composite	%	1 per 200 dry tons; minimum of 1 per month	Monthly [4]
Fecal Coliform [6]	Composite	MPN/gram	1 per 200 dry tons; minimum of 1 per month	Monthly [4]

Notes:

[1] Include at least the following metals: arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc.

[2] Using SW 846 Method 8080.

[3] Using EPA Method 8270.

[4] Include analytical data in the monthly monitoring report for the month in which monitoring occurred. For months in which no monitoring takes place, the Monthly Monitoring Report shall so state.

[5] The result of subtracting the percent total solids from 100.

[6] Sampling and analysis for Class A biosolids only.

The analytical data shall be presented in the monthly monitoring report(s) for the month(s) in which application of the biosolids occurs. For months in which no application takes place, the Monthly Monitoring Report shall so state.

ROUTINE FIELD MONITORING

The Dischargers shall establish and implement an inspection and application oversight program to monitor and control biosolids application rates, and to ensure compliance with the WDRs.

Each discrete application field (land application area) shall be managed and monitored as follows:

1. **Pre-Application Oversight**

    a. Identify generator(s) whose biosolids are to be applied.

    b. Define crop to be planted.

    c. Calculate allowable loading rate based on soil nitrogen residual data from the previous fall and most recent plant available nitrogen (PAN) and moisture content data for the generator(s)' biosolids.

    d. Document communication of allowable loading rates to spreader operator.

2. **Pre-Application Inspection**

    a. Verify that setbacks are clearly delineated.

    b. Verify that runoff controls are in place and functional.

    c. Verify that culverts are blocked (where applicable).

3. **Application Oversight**

   a. Verify compliance with setbacks and allowable loading rate.

   b. Verify compliance with soil incorporation requirements.

4. **Post-Application Oversight**

   a. Confirm with irrigation manager requirements to control runoff for the specified period after application.

   b. Calculate actual biosolids and PAN loading rates.

   c. Note anticipated dates of planting, irrigation, and harvest.

SOIL MONITORING

The Dischargers shall establish an annual soil sampling program as follows: two background sampling locations outside of the land application areas (e.g., within application setback areas) and at least six sampling locations within each discrete land application area identified in the WDRs that has received biosolids in the last 12 calendar months. Sampling locations shall be distributed to be representative of each subarea and predominant soil type. Soil samples shall be collected from each sampling location at the following depth intervals: 0 to 1 foot, 2 to 3 feet, and 5 to 6 feet below the ground surface. Each 12-inch sample shall be thoroughly mixed to create a composite sample representative of the depth interval, and shall be analyzed as follows:

Constituents	**Units**	**Sampling Frequency** [3]	**Reporting Frequency**
Soil Classification (USCS and USDA)	---	Annually	Annually
pH	Std Units	Annually	Annually
Total Solids [1]	% total weight	Annually	Annually
Total Alkalinity [1]	mg/Kg as CaCO3	Annually	Annually
Cation Exchange Capacity [1]	meq/100 grams	Annually	Annually
Electrical Conductivity	µmhos/cm	Annually	Annually
Chloride [2]	mg/L	Annually	Annually
Iron [2]	mg/L	Annually	Annually
Manganese [2]	mg/L	Annually	Annually

Notes:

1 To be reported on a dry weight basis; show calculations.

2 Analysis shall be performed on the extract obtained from the Waste Extraction Test using distilled water as the extractant.

3 Samples shall be collected in the fall (fourth quarter). Sampling must occur at the same time each year.

STORM WATER RETENTION POND MONITORING

Storm water samples shall be obtained from each of the storm water retention ponds, as defined in the Waste Discharge Requirements (WDRs), when water is present. Grab samples will be considered representative. Storm water monitoring shall include, at a minimum, the following:

Constituent	Units	Type of Sample	Sampling Frequency	Reporting Frequency
pH	Std.	Grab	Monthly	Monthly
Total Dissolved Solids	mg/L	Grab	Monthly	Monthly
Nitrate Nitrogen	mg/L	Grab	Monthly	Monthly
Ammonia Nitrogen	mg/L	Grab	Monthly	Monthly
Standard Minerals [1]	mg/L	Grab	Monthly	Monthly
Metals [2]	mg/L	Grab	Monthly	Monthly

Notes:
[1] Standard Minerals shall include, at a minimum, the following: chloride, iron, manganese, and sodium.
[2] Metals shall include cadmium, copper, lead, nickel, and zinc.

Analytical data and a map identifying sample locations shall be presented in the Annual Report.

REPORTING

All regulatory documents, submissions, materials, data, monitoring reports, and correspondence should be converted to a searchable Portable Document Format (PDF) and submitted electronically. Documents less than 50MB should be emailed to:

centralvalleysacramento@waterboards.ca.gov

Documents that are 50 MB or larger should be transferred to a CD, DVD, or flash drive and mailed to the following address:

Central Valley Regional Water Quality Control Board
ECM Mailroom
11020 Sun Center Drive, Suite 200
Rancho Cordova, California 95670

To ensure that your submittals are routed to the appropriate staff, the following information block should be included in any correspondence used to transmit documents to this office:

Silva Ranch Biosolids Land Application, Sacramento County		
Program: Non-15 Compliance	Order: R5-2019-0002	CIWQS Place ID: 257072

In reporting monitoring data, the Dischargers shall arrange the data in tabular form using the format provided in the example tables, which are part of this MRP, or in another approved

format so that the date, sample type (e.g., biosolids, soil, etc.), and reported analytical result for each sample are readily discernible. The data shall be summarized in such a manner to clearly illustrate compliance with waste discharge requirements and spatial or temporal trends, as applicable. The results of any monitoring done more frequently than required at the locations specified in the Monitoring and Reporting Program shall be reported in the next scheduled monitoring report.

As required by the California Business and Professions Code sections 6735, 7835, and 7835.1, all Groundwater Monitoring Reports shall be prepared under the direct supervision of a Registered Engineer or Geologist and signed and stamped by the registered professional.

A. Monthly Monitoring Reports

Monthly reports shall be submitted to the Regional Board on the **1st day of the second month following the end of the monitoring period** (i.e. the January Report is due by 1 March). At a minimum, the reports shall include:

1. A scaled site map depicting each discrete field, property boundaries, roads, on-site structures, surface water bodies, drainage features, and runoff controls (as applicable);

2. The results of biosolids monitoring for each biosolids generator whose waste were applied to land during the month. Specifically, tabulated data for each generator and verification of compliance with the biosolids monitoring requirements shall be provided using the attached Biosolids Monitoring Results form (or approved revision thereof). Laboratory analytical reports need not be included, but must be provided upon request;

3. The results of routine field monitoring. Specifically, tabulated information for each discrete application field used during the month shall be provided using the attached Field Monitoring Results form (or approved revision thereof) and metals loading rate for the month;

4. For each biosolids generator and discrete application field, a comparison of monitoring data to Prohibition A.10 and Mass Loading Limit C.2 and an explanation of any violation of those requirements;

5. If no biosolids were applied during the month, a letter report certifying that fact; and

6. The results of storm water retention pond monitoring.

B. Annual Report

An Annual Report shall be prepared and submitted to the Regional Board by **1 February** each year. The Annual Report shall include the following:

1. The monthly monitoring report for the last month of the calendar year.

2. In tabular format, the total mass (dry tons) of biosolids received from each biosolids generator for each month in the calendar year.

3. For each discrete application field, the total biosolids applied, irrigation, precipitation, and runoff control operations for each month in the calendar year. Specifically, tabulated information for each discrete application field shall be provided using the attached Field Activities Summary form (or approved revision thereof).

4. In tabular format, for each discrete application field:

    a. Total cumulative metals loading rates (lbs/acre) as of the end of the previous calendar year;

    b. Calculated total metals and plant available nitrogen (PAN) loading rates (lbs/acre) for the calendar year and provide calculations to obtain PAN loading results;

    c. The cumulative metals loading rates (lbs/acre) since biosolids land application began, which is the sum of metals from newly applied and from previously applied biosolids; and

    d. The cumulative metals loading rates to date as a percentage of the cumulative metals loading limits.

5. A report of soil monitoring, including:

    a. Sampling and analysis activities, including a scaled map of sampling locations;

    b. Tabulation of all soil analytical results;

    c. Historical time vs. concentration plots for each constituent at each sampling interval;

    d. A discussion of any observed spatial or temporal variation; and

    e. Whether pH adjustment is needed and, if so, how and when the adjustment will be made.

6. A storm water retention pond monitoring summary report including:

    a. The contents of the regular storm water monitoring report for the last sampling event of the calendar year;

    b. Tabular summaries of all data collected during the calendar year; and

    c. Dates when storm water runoff was released to surface waters and/or used for irrigation, and the volume discharged on each day.

7. An evaluation of the potential effects including potential nutrient imbalances, metals phytotoxicity, and excessive salinity on land productivity based on site soils and biosolids characterization. If any detrimental impact to soil productivity or animal health is identified, include a discussion of corrective actions taken, planned, or proposed.

8. A discussion of compliance and the corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into full compliance with the waste discharge requirements.

9. A discussion of any data gaps and potential deficiencies or redundancies in the monitoring system or reporting program.

A letter transmitting the self-monitoring reports shall accompany each report. The letter shall clearly indicate the submitting Discharger's name, facility or site name, county, monitoring period, and type of report (i.e., monthly, quarterly, or annual). The letter shall include a discussion of any requirement violations during the reporting period and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. Pursuant to the Standard Provisions and Reporting Requirements, the transmittal letter shall contain a statement by the Discharger or its authorized agent, under penalty of perjury, that to the best of the signer's knowledge, the report is true, accurate, and complete.

The Discharger shall implement the above monitoring program as of the date of this Order.

I, PATRICK PULUPA, Executive Officer, do hereby certify that the foregoing is a full and correct copy of a Monitoring and Reporting Program issued by the California Regional Water Quality Control Board, Central Valley Region on 7 February 2019.

- original signed by -

PATRICK PULUPA, Executive Officer

ATTACHMENTS: Biosolids Monitoring Results Form
Monthly Field Monitoring Results Form
Annual Field Activities Summary Form

GLOSSARY

BOD_5	Five-day biochemical oxygen demand
CaCO3	Calcium carbonate
DO	Dissolved oxygen
EC	Electrical conductivity at 25° C
FDS	Fixed dissolved solids
NTU	Nephelometric turbidity unit
TKN	Total Kjeldahl nitrogen
TDS	Total dissolved solids
TSS	Total suspended solids
Continuous	The specified parameter shall be measured by a meter continuously.
24-hr Composite	Samples shall be a flow-proportioned composite consisting of at least eight aliquots over a 24-hour period.
Daily	Every day except weekends or holidays.
Twice Weekly	Twice per week on non-consecutive days.
Weekly	Once per week.
Twice Monthly	Twice per month during non-consecutive weeks.
Monthly	Once per calendar month.
Bimonthly	Once every two calendar months (i.e., six times per year) during non-consecutive months.
Quarterly	Once per calendar quarter.
Semiannually	Once every six calendar months (i.e., two times per year) during non-consecutive quarters.
Annually	Once per year.
mg/L	Milligrams per liter
mL/L	Milliliters [of solids] per liter
µg/L	Micrograms per liter
µmhos/cm	Micromhos per centimeter
gpd	Gallons per day
mgd	Million gallons per day
MPN/100 mL	Most probable number [of organisms] per 100 milliliters
MTF	Multiple tube fermentation

ORDER R5-2019-0002
SYNAGRO WEST, LLC AND GARY SILVA, SR
SILVA RANCH BIOSOLIDS LAND APPLICATION
SACRAMENTO COUNTY

INFORMATION SHEET

Gary Silva, Sr. (Silva) owns the Silva Ranch property that receives biosolids. The biosolids application site is approximately 3,000 acres of agriculturally zoned land located on property designated as "Silva Ranch I" and "Silva Ranch II," which consists of multiple parcels divided into numerous individual fields. Synagro West, LLC (Synagro) manages the application of biosolids on the Silva Ranch property and, like Silva, is also responsible for compliance with these Waste Discharge Requirements (WDRs).

Silva Ranch I and Silva Ranch II have been receiving biosolids as a soil amendment since 1995 and 1998, respectively. "Class A" and "Class B" biosolids are accepted year-round as a fertilizer for the production of durum wheat and sudan grass crops. Crops are grown and harvested for the production of livestock feed or used for grazing of livestock.

WDRs Order 95-064, adopted by the Central Valley Water Board on 24 March 1995, prescribes requirements for the discharge of biosolids on approximately 1,200 acres of Silva Ranch I. WDRs Order 98-023, adopted on 23 January 1998, prescribes requirements for the discharge of biosolids on approximately 1,600 acres of Silva Ranch II.

Monitoring and Reporting Program (MRP) R5-2007-0807, issued on 25 April 2007, prescribes requirements for monitoring biosolids and biosolids land application areas that are regulated under WDRs Order 95-064 and WDRs Order 98-023.

Silva Ranch receives biosolids from municipal wastewater treatment facilities from 16 California counties. Silva Ranch allows for 24-hour deliveries, seven days per week, 365 days per year weather permitting. Within 24 hours of arrival at the site, the biosolids are loaded from the ground into surface application equipment and spread onto the designated field. Disking is performed to incorporate the biosolids into the topsoil within 24 hours of application. During inclement weather, biosolids is stored at the "Pit," a "short-term" biosolids storage facility, until the weather has cleared and field conditions are suitable for application.

Land Application Areas designated to receive biosolids is summarized below.

LAA Field Designation	APN	Available Acres	Location
Field 3	136-0280-023	29.5	Silva Ranch I
Field 4	136-0280-023	28.4	Silva Ranch I
Field 22	140-0030-029	13.6	Silva Ranch I
Field 24	140-0030-029	17.5	Silva Ranch I
Field 44	138-0060-028	29.5	Silva Ranch I
Field 45	138-0060-028	9.8	Silva Ranch I
Field 47	136-0280-023	30.2	Silva Ranch I
Field 51	138-0060-030	26.2	Silva Ranch I
Field 52	138-0060-030	22.0	Silva Ranch I
Field 53	138-0060-025	21.4	Silva Ranch II

LAA Field Designation	APN	Available Acres	Location
Field 57	138-0060-025	34.9	Silva Ranch II
Field 58	138-0060-025	7.6	Silva Ranch II
Field 59	138-0060-025	3.6	Silva Ranch II
Field 65	138-0060-059	21.8	Silva Ranch II
Field 66	138-0060-059 138-0060-025	31.3	Silva Ranch II
Field 70	136-0280-024	53.4	Silva Ranch II
Field 72	136-0280-025	76.4	Silva Ranch II
Field 73	136-0280-024	73.5	Silva Ranch II
Field 74	136-0280-036	37.4	Silva Ranch II
Field 80	138-0060-053	68.7	Silva Ranch II
Field 81	138-0060-053 138-0060-049	60.9	Silva Ranch II
Field 83	138-0060-053 138-0060-049	69.9	Silva Ranch II
Field 86	136-0280-023	46.5	Silva Ranch I
Field 87	136-0280-023	48.0	Silva Ranch I
Field 88	136-0280-023	81.5	Silva Ranch I
Field 89	136-0280-023	7.2	Silva Ranch I
Field 90	140-0030-028 140-0030-029	29.0	Silva Ranch I
Field 91	140-0030-029	132.9	Silva Ranch I
Field 92	140-0030-029	78.6	Silva Ranch I
Field 93	140-0030-029	41.4	Silva Ranch I
Field 94	140-0030-028	80.7	Silva Ranch I
Field 95	140-0030-028 136-0280-023	35.2	Silva Ranch I
Field 97	136-0280-023 138-0060-028	46.0	Silva Ranch I
Field 98	136-0280-023 138-0060-028	66.0	Silva Ranch I
Field 99	136-0280-023 138-0060-028	76.7	Silva Ranch I
Field 100	138-0060-028 140-0050-021	93.3	Silva Ranch I
Field 101	138-0060-028	5.7	Silva Ranch I
Field 102	138-0060-028	12.3	Silva Ranch I

LAA Field Designation	APN	Available Acres	Location
Field 103	138-0060-028	38.1	Silva Ranch I
Field 104	138-0060-028	23.1	Silva Ranch I
Field 105	138-0060-028	71.0	Silva Ranch I
Field 106	138-0060-028	81.2	Silva Ranch I
Field 107	138-0060-025 138-0060-064	25.5	Silva Ranch II
Field 108	138-0060-025 138-0060-064	11.9	Silva Ranch II
Field 109	138-0060-025 138-0060-064	32.8	Silva Ranch II
Field 110	138-0060-061	13.3	Silva Ranch II
Field 111	138-0060-061 138-0060-025	30.7	Silva Ranch II
Field 113	138-0060-025	94.0	Silva Ranch II
Field 114	138-0060-053	23.7	Silva Ranch II
Field 115	138-0060-053	22.2	Silva Ranch II
Field 116	138-0060-049	52.9	Silva Ranch II
Field 117	138-0060-049	25.6	Silva Ranch II
Field 118	136-0280-036	10.2	Silva Ranch II
Field 119	136-0280-036	29.6	Silva Ranch II
Field 120	136-0280-036	62.7	Silva Ranch II
Field 121	136-0280-036	16.5	Silva Ranch II
Field 122	136-0280-024	44.0	Silva Ranch II
Field 124	136-0280-024	9.6	Silva Ranch II
Field 125	136-0280-024	60.8	Silva Ranch II
Field 126	136-0280-024	19.2	Silva Ranch II
Field 128	136-0280-024	3.3	Silva Ranch II
Filed 129	138-0060-028	4.0	Silva Ranch I

Storm Water Retention Basins that have the potential to collect runoff from the fields that receive biosolids is summarized below.

Basin	APN	Location
RB-A	138-0060-028	Silva Ranch I
RB-B	138-0060-028	Silva Ranch I
RB-E	136-0280-023	Silva Ranch I
RB-F	136-0280-023	Silva Ranch I
RB-I	140-0030-029	Silva Ranch I

Basin	APN	Location
RB-J	140-0030-029	Silva Ranch I
RB-K	140-0030-029	Silva Ranch I
RB-L	140-0030-029	Silva Ranch I
RB-M	138-0060-028	Silva Ranch I
RB-N	138-0060-028	Silva Ranch I
RB-P	138-0060-028	Silva Ranch I
RB-Q	138-0060-053	Silva Ranch II
RB-R	138-0060-059 [1]	Silva Ranch II
RB-S	136-0280-036	Silva Ranch II

[1] Just north of APN 138-0060-059.

Compliance Issues

In 2017, the Central Valley Water Board issued a Notice of Violation (NOV) to Silva and Synagro (Dischargers) regarding the overlapping application of compostable/green material within areas of Silva Ranch I. The overlapping application of compostable/green material is a concern to the Central Valley Water Board, as it may result in the overloading of nitrogen and other constituents. As of 28 October 2016, compostable/green material has not been applied to fields designated as LAAs to receive biosolids, but is applied on other fields within the Silva Ranch property. The Central Valley Water Board intends to address the disposal of compostable/green material through a separately-issued monitoring and reporting program and/or WDRs orders.

Compliance with State Water Board Biosolids General Order

The State Water Resources Control Board adopted Water Quality Order No. 2004-0012-DWQ, *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* (Biosolids General Order), on 22 July 2004. The Dischargers' biosolids land application operation at the Silva Ranch property does not qualify for regulatory coverage under the Biosolids General Order because it:

1. Exceeds the allowable 2,000 net acreage.

2. Does not comply with Discharge Specification B.10.b(2)(a) of the Biosolids General Order ("For at least 60 days after application of biosolids in areas with average daily … air temperatures exceeding 50 degrees Fahrenheit…Domesticated Animals are not grazed.").

    a. The Dischargers' current biosolids operation prevents grazing by animals whose products are consumed by humans for one month after biosolids application, which meets the minimum standards per 40 C.F.R. section 503.32.

    b. The General Order prescribes more stringent site restrictions due to potentially significant impacts related to land productivity and animal

health. Potential land productivity impacts include changes in soil fertility and salinity, changes in trace elements and heavy metal plant toxicity in soils, changes in grazing-land productivity, and soil degradation. Potential animal health impacts include the transmittal of pathogenic organisms in crops grown on biosolids application sites where animals are allowed to graze.

3. Does not comply with Prohibition A.14 of the General Order ("The application of "Class B" biosolids containing a moisture content of less than 50 percent is prohibited."), which prescribes a minimum moisture content to reduce the potential for biosolids movement offsite, specifically pertaining to visible particulate matter or windblown material.

The Biosolids General Order was developed to streamline the regulatory process for land application of biosolids as a soil amendment, but may not be appropriate for all sites using biosolids due to site-specific conditions or location. Therefore, such sites are not precluded from being issued individual WDRs. Many of the requirements of the Biosolids General Order are appropriate for this site. The Prohibitions and Discharge Specification of this Order are similar to those contained in the Biosolids General Order. Site-specific requirements that do not comply with the Biosolids General Order will be allowed based on the following:

1. This Order requires submittal of a report providing technical justification that the federally-mandated 30-day waiting period prior to allowing cattle grazing on land receiving biosolids has a low potential to affect land productivity and animal toxicity.

2. This Order requires submittal of a revised Biosolids Management Plan to address measures and controls to prevent or minimize windblown material and biosolids movement offsite during the transportation, application, and storage of biosolids, specifically the handling of biosolids with a moisture content less than 50 percent.

3. Because application sites are sometimes difficult to demarcate and distinguish, this Order requires the Dischargers to submit a workplan whereby they will propose a method for demarcating and distinguishing between application sites, and for tracking and reporting where biosolids and other materials are applied.

Site-Specific Conditions

Silva Ranch is located on moderately flat terrain, with a site elevation of 86.9 feet, and soil slopes of 0 to 20 degrees. A portion of the Ranch property falls within a 100-year flood plain. This portion is approximately 1,000 acres located at the lowest elevations of Silva Ranch I and Silva Ranch II; south of Hadseville Creek, North of Browns Creek, and West of Laguna Creek.

Silva Ranch is located in rural, remote areas of southern Sacramento County. The surrounding land uses are agricultural, typically consisting of fields planted with durum wheat and sudan grass and grazing of cattle. Rancho Seco Nuclear Generating Station and the Rancho Seco Regional Park are located southeast of the Silva Ranch property.

Soil types in the area classified by the Natural Resource Conservation Service (formerly known as the Soil Conservation Service) include Capay Clay Loam, Corning Complex, Hadselville-Pentx Complex, Hicksville Loam, Redding Gravelly Loam, and San Joaquin-Xerarents.

Groundwater Conditions

There is no groundwater monitoring network at the Silva Ranch property. Based on data from the California Department of Water Resources, depth to groundwater is approximately 150 feet.

Other Regulatory Considerations

The U.S. Environmental Protection Agency (EPA) has promulgated biosolids reuse regulations in Code of Federal Regulations, title 40, part 503 (40 C.F.R. part 503, Standard for the Use or Disposal of Sewage Sludge), which establishes management criteria for protection of ground and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria.

The Central Valley Water Board is using 40 C.F.R. part 503 as guidelines in establishing this Order, though it is not the implementing agency for such regulations. The Dischargers may have separate and/or additional compliance, reporting, and permitting responsibilities to the EPA.

Legal Effect of Rescission of Prior WDRs or Orders on Existing Violations

The Central Valley Water Board's rescission of prior waste discharge requirements and/or monitoring and reporting orders does not extinguish any violations that may have occurred during the time those waste discharge requirements or orders were in effect. The Central Valley Water Board reserves the right to take enforcement actions to address violations of prior prohibitions, limitations, specifications, requirements, or provisions of rescinded waste discharge requirements or orders as allowed by law.

Monitoring and Reporting Program

The Monitoring and Reporting Program is designed to verify compliance with the prohibitions, mass loading limitations, and operational requirements of the WDRs.