STATE OF CALIFORNIA
CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

GENERAL WASTE DISCHARGE REQUIREMENTS FOR DISCHARGES FROM IRRIGATED LANDS

ORDER NO. R3-2021-0040

April 15, 2021

ATTACHMENT B

Monitoring and Reporting Program

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Section A. General Monitoring and Reporting Requirements

1. This Monitoring and Reporting Program (MRP) is issued pursuant to California Water Code section 13267, which authorizes the Central Coast Regional Water Quality Control Board (Central Coast Water Board) to require preparation and submittal of technical and monitoring reports.

2. The Central Coast Water Board needs the information required by this MRP to determine compliance with Order No. R3-2021-0040. The evidence supporting the need for and benefits of to be obtained from these monitoring and reporting requirements is included in the findings the Order.

3. Pursuant to Water Code section 13268, a violation of a request made pursuant to section 13267 may subject the Discharger to civil liability of up to $1000 per day. Pursuant to Water Code section 13350, a violation of a request made pursuant to section 13350 may subject the Discharger to civil liability of up to $5000 per day.

4. Dischargers must submit reports in the format specified by the Executive Officer. Reports must be submitted electronically, unless otherwise specified by the Executive Officer. A transmittal letter must accompany each report, containing the following penalty of perjury statement signed by the Discharger or the Discharger's authorized agent:

   "In compliance with Water Code section 13267, I certify under penalty of perjury that this document and all attachments were prepared by me, or under my direction or supervision, following a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. To the best of my knowledge and belief, this document and all attachments are true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

5. All technical and monitoring reports submitted in compliance with this MRP must be complete and accurate. The submittal of an incomplete or inaccurate report does not constitute compliance with the requirement.

6. Unless otherwise noted[1], all water quality analyses must be conducted at a laboratory certified for such analysis through a California Environmental Laboratory Accreditation Program (ELAP) and in accordance with approved standard and United States Environmental Protection Agency (USEPA) methods.[2] Unless otherwise noted, all sampling, sample preservation, and analyses must be performed in accordance with the latest edition of Test

[1] As noted in paragraph 12.c, below, it is acceptable for a Discharger to use either laboratory analysis or a portable measuring device to obtain precise measurements of nitrogen in irrigation wells for total nitrogen applied and irrigation and nutrient management plan summary reporting purposes

[2] Certified laboratories can be found online in the **List of Qualified Laboratories for Groundwater Monitoring**.

Methods for Evaluating Solid Waste, SW-846, USEPA, and analyzed as specified herein by the above analytical methods and reporting limits indicated.

7. Any laboratory data submitted to the Central Coast Water Board must be submitted by, or under the direction of, a state registered professional engineer, registered geologist, state certified laboratory, or other similarly qualified professional. Surface water quality data must be submitted electronically, in a format that is compatible with the California Environmental Data Exchange Network (CEDEN), or as directed by the Executive Officer. Groundwater quality data must be submitted in a format compatible with the electronic deliverable format (EDF) electronic data deliverable (EDD) criteria and protocols used by the State Water Board's GeoTracker data management system, or as directed by the Executive Officer.

8. Dischargers must provide the geographic information necessary to determine the Groundwater Phase Area and Surface Water Priority Area that applies to each individual ranch when they enroll or update their electronic Notice of Intent (eNOI).

9. Dischargers with wells on their ranch must indicate on their eNOI the number of domestic and irrigation wells that are in use on their ranch. Dischargers must also update their eNOI within 60 days when a new well is put in service, when a previously reported well is taken out of service (e.g., a well is either destroyed or becomes inactive) or when use of a previously inactive well resumes.

10. The Central Coast Water Board encourages Dischargers to participate in third-party monitoring programs to comply with monitoring and reporting requirements contained herein. Dischargers not participating in a third-party monitoring program must conduct required monitoring and reporting individually. Participation in a third-party monitoring program does not relieve Dischargers of the responsibility to comply with these requirements or of the requirement to have their ranch-level data reported to the Central Coast Water Board.

11. Dischargers must report on CEQA mitigation measure implementation electronically in the ACF.

Section B. Irrigation and Nutrient Management Monitoring and Reporting Requirements

1. **By March 1 of each year**, all Dischargers, including those participating in a third-party alternative compliance pathway, must provide the Central Coast Water Board with either:

    a. A Total Nitrogen Applied (TNA) report, which includes applied nitrogen and irrigation information, or
    b. An Irrigation and Nutrient Management Plan (INMP) Summary report, which includes information from the TNA report, total nitrogen removed,

and additional specific irrigation management information noted in paragraph 15 below.

2. A comparison of information required in TNA reporting versus INMP Summary reporting is included in **Table MRP-1**. TNA reports will be used to determine the relative contribution of nitrogen applied to a ranch from all sources. INMP Summary reports will be used to determine compliance with the nitrogen discharge targets and limits established in the Order. Required information for both reports must be recorded for the calendar year prior to the report due date (for example, if a report is due March 1, 2024, the monitoring information must be recorded from January 1 through December 31, 2023). The physical area reported on in each report form must represent no more than 640 acres; if a ranch is greater than 640 acres in size then multiple reports must be submitted.

3. Eventually, all Dischargers must submit an INMP Summary report; however, the timeframe for when Dischargers transition from TNA reporting to the more comprehensive INMP Summary reporting is phased in over time, as shown in **Table MRP-2**. With the exception of Dischargers who were enrolled in Order No. R3-2017-0002 (Ag Order 3.0) and required to submit TNA reports under Ag Order 3.0, the timeframe for when a Discharger must begin conducting expanded INMP monitoring and INMP Summary reporting is based on a Discharger's Groundwater Phase area.

4. For the first two years the Order is in effect (2021 and 2022), all Dischargers (regardless of Groundwater Phase area) who were required to submit TNA reports under Ag Order 3.0 must continue to conduct monitoring, recordkeeping, and reporting as described below for submittal of a complete and accurate TNA report **by March 1, 2022 and 2023**. This Ag Order 3.0 requirement for specific Dischargers will be superseded by requirements summarized in **Table MRP-2** (i.e., according to Dischargers' ranch locations within specific Groundwater Phase areas).

5. Beginning in 2023, Dischargers in Groundwater Phase 1,[3] 2, and 3 areas must conduct monitoring and reporting associated with required TNA and/or INMP Summary reporting requirements in accordance with **Table MRP-2.**

TNA Report Requirements

6. On an annual basis, Dischargers required to submit the TNA report must monitor and report the total amount of nitrogen applied from all sources, as described below, including fertilizer nitrogen ($\mathbf{A_{FER}}$), compost nitrogen ($\mathbf{A_{COMP}}$), organic fertilizer nitrogen ($\mathbf{A_{ORG}}$), irrigation water nitrogen ($\mathbf{A_{IRR}}$)**,** nitrogen present in the

[3] Dischargers in Groundwater Phase 1 areas are not required to submit a stand-alone TNA report; rather, due to the prioritization of Phase 1 areas, Dischargers in portions of the Gilroy-Hollister Valley (Llagas Area) groundwater basin, the Forebay Aquifer and Upper Valley subbasins of the Salinas Valley basin, the Santa Maria area of the Santa Maria River Valley basin, and the Santa Ynez River Valley basin must conduct the expanded monitoring and reporting associated with INMP Summary reporting before Dischargers in Groundwater Phase areas 2 and 3.

soil, nitrogen concentration of the irrigation water, volume of irrigation water applied to the ranch, and additional information described, below.

7. Fertilizer nitrogen (**A_{FER}**) for each specific crop.

   Dischargers must monitor and report the total amount of nitrogen applied to the ranch from fertilizers during the reporting period. **A_{FER}** includes nitrogen applied from fertilizers and all other materials or products containing nitrogen excepting compost and organic fertilizer nitrogen (both tracked and reported separately), including but not limited to, inorganic fertilizers, fertilizers applied through the irrigation water (i.e., fertigation), foliar fertilizers, slow release products, compost teas, manure, and compost or manure extracts.

8. Compost nitrogen (**A_{COMP}**) by specific crop or for the entire ranch.

   a. Dischargers must monitor and report the total amount of compost nitrogen applied to the ranch during the report period.
   b. Dischargers have the option of using a compost discount factor (**C**) to calculate the amount of compost nitrogen mineralized during the report year the compost was applied to the ranch. The compost discount factor can only be applied to compost reported as **A_{COMP}**. If compost is reported under **A_{FER}** then the compost discount factor cannot be applied.
   c. The Central Coast Water Board's standard compost discount factors (**C**) are defined below. Different compost discount factors are applied based on the carbon to nitrogen (C:N) ratio of the product.[4]
      i. For C:N ratio > 11:1, C = 0.05. That is, 5 percent of the nitrogen in the compost will be counted in the A-R compliance calculation.
      ii. For C:N ratio ≤ 11:1, C= 0.10. That is, 10 percent of the nitrogen in the compost will be counted in the A-R compliance calculation.
   d. Only a final product (or stabilized compost) can receive the compost discount factors defined above. Other materials containing nitrogen that are not final products are not eligible for the compost discount factor. Vegetative food materials include the crop residues left on the field after harvest and are not considered to be a final product. A final product is a material that has been composted and completed the curing composting phase.
   e. Dischargers who elect to use their own compost discount factor (C) to determine the amount of compost nitrogen mineralized during the report year must report their C value. Records detailing the rationale and sampling methods used to determine the C value must be maintained in the Farm Plan and must be submitted to the Central Coast Water Board upon request.

[4] **Attachment A, Section C.1** includes information on the source of the standard compost discount factors.

f. If compost nitrogen is reported as **A_{COMP}** it should not also be included in the **A_{FER}** calculation (i.e., it should not be reported twice in the same report form).

9. Organic fertilizer nitrogen (**A_{ORG}**) by specific crop.

   a. Dischargers must monitor and report the total amount of organic fertilizer nitrogen applied to the ranch during the report period.
   b. Dischargers have the option of using an organic fertilizer discount factor (O) to calculate the amount of organic fertilizer nitrogen mineralized during the first 12 weeks the organic fertilizer was applied to the ranch. The organic fertilizer discount factor can only be applied to organic fertilizer reported as **A_{ORG}**. If organic fertilizer is reported under **A_{FER}** then the organic fertilizer discount factor cannot be used.
   c. The Central Coast Water Board's organic fertilizer discount factors (O) are defined in **Table MRP-3**. Different organic fertilizer discount factors can be applied based on the carbon to nitrogen (C:N) ratio of an organic product.
   d. If organic fertilizer nitrogen is reported as **A_{ORG}** it should be calculated and reported separately from **A_{FER}** (i.e., it should not be reported as part of **A_{FER}** to avoid double counting in the same report).
   e. The following products are not eligible to receive the organic fertilizer discount: a) products with no organic compounds (long chain carbon) molecules, such as conventional fertilizer, slow release fertilizers, b) products that do not depend on microbial mineralization to release nitrogen to mineral form to make it available for crop uptake, c) products without C:N ratio information available, and d) organic liquid fertilizers that are in the liquid and/or emulsified form.

10. Irrigation water nitrogen (**A_{IRR}**) for the entire ranch.

    a. The amount of irrigation water nitrogen applied, **A_{IRR}**, is calculated using the nitrogen concentration of the irrigation water and the volume of water applied to the ranch during the reporting period.
    b. **A_{IRR}** does not include liquid fertilizers applied during fertigation (i.e., fertigation nitrogen is accounted for in A_{FER} as noted above).
    c. The volume of water used in this calculation must include all water applied, including water applied for irrigation, leaching, runoff, backflush, operational spills, etc. Rainwater should not be included in this calculation.

11. Nitrogen present in the soil.

    a. Dischargers must conduct soil nitrogen monitoring to inform fertilizer application decisions for their ranch. Dischargers must measure and report the amount of soil nitrogen present in the soil at least once per

reporting period. Soil nitrogen monitoring locations and frequencies should be representative of cropping patterns and soil types as needed to inform nitrogen management decisions.

b. Dischargers should take a soil sample for laboratory analysis, use a nitrate quick test, or use an alternative method to evaluate nitrogen content in the soil prior to each crop planting, prior to seeding the field, prior to pre-side dressing, or when appropriate to determine nitrogen available in the soil for the current or following crop, prior to applying fertilizer nitrogen. These records must be maintained in the Farm Plan and submitted to the Central Coast Water Board upon request.
c. Soil nitrogen content must be measured at the time of year or the stage during the crop cycle when soil nitrogen content is high and therefore should be accounted for as a source of nitrogen. Records describing the timing of the soil nitrogen monitoring and the rationale used to determine the timing must be maintained in the Farm Plan and must be submitted to the Central Coast Water Board upon request.

12. Nitrogen concentration of the irrigation water.

a. Dischargers must, at a minimum, obtain and report a precise[5] nitrogen concentration from the primary source of irrigation water (e.g., primary irrigation well, municipal supply water, recycled water, etc.) during the report period. If Dischargers obtain multiple precise nitrogen samples from their primary irrigation well, they must compute and report the average nitrogen concentration based on all samples taken.
b. Dischargers using an irrigation source for their ranch that is not located on their ranch property (e.g., sharing an irrigation well with a neighbor) are still responsible for obtaining a precise nitrogen concentration from the primary source of irrigation water.
c. Examples of methods used to obtain precise values include laboratory analyses and portable measuring devices. A method that produces a concentration range, such as a nitrate quick test strip, cannot be used to satisfy this requirement unless additional technology or methods are used to obtain a precise value from the test strip.
d. Where possible, Dischargers are encouraged to obtain precise nitrogen samples from all sources of irrigation water and compute a weighted average irrigation water nitrogen concentration. The weighted average is calculated using volume and concentration information from each water source. The methodology for calculating the weighted average is described below.

[5] For the purposes of this MRP, a “precise” represents an exact measurement (e.g., 2.5 mg/L or 4 mg/L), as opposed to a measurement expressed as a range (e.g. 1-5 mg/L).

13. Volume of irrigation water applied to the ranch.

    a. Dischargers must, at a minimum, estimate and report the total volume of irrigation water applied to the ranch during the report period. Where possible, Dischargers are encouraged to measure the volume of irrigation water applied to the ranch or to each specific crop grown. Records describing the method used to estimate the volume of irrigation water applied must be maintained in the Farm Plan and must be submitted to the Central Coast Water Board upon request.

14. Additional information.

    a. Dischargers must report additional information required in the TNA report form, including acres of each specific crop grown, whether each specific crop was grown using organic or conventional methods, irrigation system type(s), and information describing the basis for the amount of nitrogen applied (e.g., University of California (UC) Farm Advisor consultation, on-farm research trials, trade publication, etc.).

INMP Summary Report Requirements

15. On an annual basis, Dischargers required to submit the INMP Summary report must monitor and report all nitrogen applied information noted in the TNA Report Requirements paragraphs above, in addition to the following specific irrigation management information and total nitrogen removed requirements:

    a. **Nitrogen concentration of irrigation water**: Dischargers must obtain sufficient samples to calculate the amount of nitrogen applied with the irrigation water to be used in determining compliance with nitrogen discharge targets and limits. At a minimum, Dischargers must obtain and report a precise nitrogen concentration from **all** sources of irrigation water used for their ranch during the reporting period (i.e., all irrigation wells, rather than only the primary irrigation well for TNA reporting). Dischargers may obtain multiple samples per well to increase the accuracy of their reporting and improve their ability to utilize irrigation water nitrogen in place of fertilizer nitrogen. If Dischargers obtain multiple precise nitrogen samples from a given well, they must compute and report the given well's average nitrogen concentration based on all samples taken from that well.
    b. **Weighted average irrigation water nitrogen concentration for the ranch**: Dischargers **must** calculate and report a weighted average irrigation water nitrogen concentration for their ranch. The weighted average is calculated using volume and concentration information from each water source. The following equation must be used to compute the

weighted average nitrogen concentration of irrigation water:

$$Weighted\ Average\ Concentration = \frac{((C1 * V1) + (C2 * V2) + (C3 * V3) + \cdots)}{(V1 + V2 + V3 + \cdots)}$$

where C1 is the nitrogen concentration if well 1, V1 is the volume of well 1, C2 is the concentration of well 2, etc.

c. **Volume of irrigation water applied to the ranch**: Dischargers **must measure** and report the total volume of irrigation water applied to the ranch during the reporting period. Dischargers must estimate, and are encouraged to measure, the volume of irrigation water applied to each specific crop.

d. **Recordkeeping**: Dischargers must maintain records of all irrigation water sampling and all weighted average nitrogen calculations. Dischargers must also maintain records describing the method used to measure the volume of irrigation water applied to the ranch and/or to estimate or measure the irrigation water volume applied to each specific crop. These records must be maintained in the Farm Plan and must be submitted to the Central Coast Water Board upon request.

16. Dischargers must monitor and report information associated with all nitrogen removed in annual INMP Summary reports.

    a. **Total nitrogen removed from the field (R) for each specific crop:** Dischargers must monitor and report the total amount of nitrogen removed from the field through harvest (**R_{HARV}**), sequestration (**R_{SEQ}**), scavenging (**$R_{SCAVENGE}$**), treatment (**R_{TREAT}**), or other removal methods (**R_{OTHER}**).

$$\mathbf{R = R_{HARV} + R_{SEQ} + R_{SCAVENGE} + R_{TREAT} + R_{OTHER}}$$

    b. **R_{HARV} = Conversion Coefficient x Material Removed**

        i. All Dischargers must monitor the total mass of each specific crop in pounds per acre removed from the field during the reporting period.

        ii. To calculate the amount of nitrogen removed from the field, Dischargers must either use a conversion coefficient provided by the Central Coast Water Board in **Table MRP-4** or develop and use their own conversion coefficient. Dischargers who elect to develop their own conversion coefficient must do so by obtaining a laboratory result from samples collected from their operation, or similar operation, following standard protocols to be developed by the Water Board in coordination with UCCE and CDFA and approved by the Executive Officer within 12 months of order adoption, to determine the nitrogen concentration in the crop material. Dischargers must maintain any data collected and rationale used in determining their individual conversion coefficient in the Farm Plan.

This information must be submitted to the Central Coast Water Board upon request.

iii. For crops that do not yet have approved conversion coefficients in **Table MRP-4**, Dischargers must either select a conversion coefficient for a crop that is similar to their crop or develop their own conversion coefficient, individually or cooperatively, following the approved standard protocol described above. Dischargers must maintain records detailing how and why they selected a particular conversion coefficient for their crop and, if applicable, information on the method used to obtain the conversion coefficient in the Farm Plan. These records must be submitted to the Central Coast Water Board upon request.

c. **R_{SEQ}**

i. Dischargers with permanent or semi-permanent crops may determine the amount of nitrogen sequestered in their crops during the reporting year and quantify and report this as **R_{SEQ}** for use in their nitrogen applied minus nitrogen removed reporting. Dischargers must maintain any data collected and rationale used in determining the amount of sequestered nitrogen in the Farm Plan. This information must be submitted to the Central Coast Water Board upon request.

d. **$R_{SCAVENGE}$**

i. Dischargers may claim a nitrogen scavenging credit (**$R_{SCAVENGE}$**) one time per year for each ranch acre by utilizing any of the four options described below.

ii. The total acres receiving the nitrogen scavenging credit may not exceed total ranch acres. Substantiating records for this credit must be maintained in the Farm Plan and submitted to the Central Coast Water Board upon request.

iii. Dischargers electing to claim the nitrogen scavenging credit must ensure that their cover crop, high carbon amendment , or high carbon woody materials meets the definition of a nitrogen scavenging cover crop, nitrogen scavenging high carbon amendment, or high carbon woody materials as outlined below and also in Attachment A and Attachment C of this Order.

1. **Option 1: Cover Crop.**

i. Maximum allowable nitrogen scavenging credit is 30 pounds of nitrogen per acre per year.

ii. A cover crop grown on a ranch to prevent leaching of nitrogen during the wet/rainy season. The cover crop must not contain nitrogen fixing plants. The cover crop must be

grown for a minimum of three months during the wet/rainy season. The cover crop must have a minimum estimated biomass of 4,500 pounds of oven-dry matter per acre. Substantiating records must be retained in the farm plan and include dated photo documentation, locations of implemented practice, date(s) of seeding, estimated cover crop biomass and method to estimate, and type of cover crop seed.

2. **Option 2: Cover Crop – Calculated Credit.**
   i. A cover crop grown on a ranch to prevent leaching of nitrogen during the wet/rainy season. The cover crop must not contain nitrogen fixing plants. The cover crop must be grown for a minimum of three months during the wet/rainy season. The cover crop must have a minimum biomass of 4,500 pounds of oven dry shoot matter per acre. Substantiating records must be retained in the farm plan and include dated photo documentation, locations of implemented practice, date(s) of seeding, cover crop biomass, and type of cover crop seed.
   ii. The cover crop must have a carbon to nitrogen ratio (C:N) greater than or equal to 20:1.
   iii. Standard protocols will be developed by the Water Board in coordination with UCCE and approved by the Executive Officer within 18 months of order adoption, to determine the nitrogen concentration in the crop material.
   iv. The Cover Crop - Calculated Credit is the difference between the nitrogen contained in the cover crop and the amount mineralized based on the organic fertilizer discount factor (O)[6] of **Table MRP-3**.[7]
   v. Vegetative food materials (crop residues) left on the field are not considered cover crops and the credit may not be applied to such vegetative food materials.
3. **Option 3: High Carbon Amendments.**
   i. Maximum allowable nitrogen scavenging credit is 30 pounds of nitrogen per acre per year.
   ii. High carbon material (e.g., almond shells, glycerol) added to the ranch to reduce nitrogen leaching in the wet/rainy season. The high carbon amendment must have a carbon to nitrogen ratio (C:N) greater than 30:1. The high carbon

[6] The cover crop credit is calculated similarly to the organic fertilizer discount and is based on the predicted mineralization rate, which depends on the C:N ratio.
[7] The credit amount for cover crops with for a C:N ratio greater than or equal to 20:1, will be based on **Table MRP-3**, for products with a C:N ratio of greater than or equal to 15:1.

amendment must be finely ground to less than a quarter of an inch in diameter. The high carbon amendment must be incorporated into the top foot of soil. The high carbon amendment must be retained for a minimum of three months during the wet/rainy season. The high carbon amendment must have a minimum application rate of 10,000 pounds per acre. If glycerol is used as a high carbon amendment it must have a minimum application rate of 5,000 pounds per acre. Substantiating records must be retained in the farm plan and include dated photo documentation, locations of implemented practice, material and material size, confirmation that the material was incorporated in to the first foot of soil, material application rate per acre, and testing or documentation to confirm the materials C:N ratio.

4. **Option 4: High Carbon Woody Mulch Materials.**
   i. Maximum allowable nitrogen scavenging credit is 30 pounds of nitrogen per acre per year.
   ii. Woody mulch materials from crops producing semi-permanent or permanent woody plant tissue, from crops of at least 6 months of age and with a carbon nitrogen ratio (C:N) greater than 30:1. Mulch must be applied at a minimum 2-inch thickness of particles and achieve a minimum 70-percent ground cover, or at a minimum of 3,000 pounds per acre woody mulch application. Crop mulching practices should follow recommendations outlined in NRCS Conservation Practice Standard for Mulching (Code 484).

e. **R_{TREAT}**
   i. Dischargers using treatment systems on their ranch or by participating in collective treatment programs or systems may monitor the inflow and outflow nitrate concentration and volume of the treatment systems and quantify and report this as **R_{TREAT}** for use in their nitrogen applied minus nitrogen removed reporting. Dischargers must maintain any data collected and rationale used in determining the amount of nitrogen removed through treatment in the Farm Plan. This information must be submitted to the Central Coast Water Board upon request.

f. **R_{OTHER}**
   i. If Dischargers remove nitrogen from their ranch in ways not quantified above, they may monitor this nitrogen removed and

report this as R_{OTHER} for use in their nitrogen applied minus nitrogen removed reporting. Dischargers must maintain any data collected and rationale used in determining any other methods of nitrogen removal in the Farm Plan. This information must be submitted to the Central Coast Water Board upon request.

17. Dischargers must monitor and report information associated with irrigation management in annual INMP Summary reports

    a. **Crop evapotranspiration**.
        i. Dischargers must calculate and report the evapotranspiration for each specific crop. Acceptable methods include, but are not limited to, using reference evapotranspiration data from a local weather station (e.g., California Irrigation Management Information System (CIMIS)[8] or an on-farm station) with a crop coefficient conversion value, and direct measurement.
    b. **Irrigation discharge to surface water**.
        i. Dischargers must estimate and report the volume of water discharged through surface outflows, including tile drains.

Section C. Groundwater Monitoring and Reporting

This section contains four types of monitoring and reporting related to the evaluation of groundwater and drinking water quality: ***On-Farm Domestic Wells***, ***Irrigation Wells Prior to Start of Groundwater Quality Trend Monitoring***, and ***Groundwater Quality Trends*** which are required of all Dischargers and ***Ranch-Level Groundwater Discharge*** that must be completed when required by the Executive Officer.

1. All groundwater monitoring data sampled to meet the minimum groundwater monitoring requirements of the Order must be submitted electronically to the State Water Board's GeoTracker database by the testing laboratory. Submitted data must include the ranch AGL, the well coordinates (latitude and longitude), the well name (i.e., Location Identifier (LOCID)/Field Point Name) that is consistently and repeatedly used to refer to the same well each time the well is sampled, and the well type (i.e., Field Point Class; PRIW for Domestic/Private Drinking Water Well or AGIR for Agricultural/Irrigation Well). It is recommended the well name be affixed to the well to eliminate confusion during sample collection and labeling and laboratory reporting.

2. All groundwater samples must be collected by a qualified third party (e.g., consultant, technician, person conducting third-party monitoring) using proper

[8] CIMIS station data can be found online at the California Irrigation Management Information Services, Department of Water Resources website: **CIMIS Station Reports**.

sample collection and handling method, chain-of-custody, and quality assurance/quality control protocols associated with monitoring and reporting.

3. To ensure the collection of representative groundwater samples, all groundwater samples must be collected once field parameters stabilize (i.e., pH: ± 0.1, specific conductance: ± 3 – 5%, and temperature: ± 3%).

On-Farm Domestic Wells

4. Monitoring of on-farm domestic supply wells and the reporting requirements described below are necessary to protect public health by identifying domestic water wells that do not meet drinking water standards, providing timely health risk notifications, and verifying well users have alternative replacement water as may be appropriate

5. **Beginning in 2022**, **all** Dischargers, must conduct annual sampling of all on-farm domestic drinking water supply wells (see definition in **Attachment C**) between March 1 and May 31. Dischargers must report monitoring results by **July 31 each year**.

6. To ensure the collected samples are representative of the as-produced water from the domestic well, groundwater samples must be collected at or near the well head (before the pressure tank and prior to any well head treatment). If this is not possible, the water sample must be collected from a sampling point as close to the pressure tank as possible, or from a cold-water spigot located before any filters or water treatment devices or systems.

7. At a minimum, samples must be analyzed for nitrate as nitrogen or nitrate + nitrite as nitrogen, 1,2,3-trichloropropane (1,2,3-TCP), and field parameters as specified in **Table MRP-5**.

8. If a domestic supply well noted on the Discharger's electronic Notice of Intent (eNOI) becomes inactive (i.e., is taken out of service) or is abandoned (i.e., destroyed per local and state well standards), sampling may cease until such time as the domestic supply well is returned to service or a new well is installed. The Discharger must keep any records establishing that a well is not being used for domestic purposes.

9. The Discharger must ensure an inactive domestic supply well is properly maintained as follows and in accordance with local well and drinking water program requirements:

    a. The well or well plumbing is physically disconnected from any water distribution system plumbing serving a residential residence.
    b. The top of the well or well casing must be provided with a cover that is secured by a lock or other means to prevent its removal without the use of

equipment or tools. A pump, motor, or other surface feature of a supply well are considered examples of acceptable domestic supply well covers.

c. The cover must be adequate to prevent unauthorized access, a safety hazard to humans and animals, or the entrance of foreign material, pollutants, or contaminants into the well.
d. The Discharger must immediately update their eNOI when a domestic well is taken out of service, returned to service, or replaced by a new well to indicate the accurate number of operating domestic supply wells on the ranch.
e. If a domestic supply well is permanently taken out of service, the Discharger must destroy the well in accordance with California Department of Water Resources (DWR) and local requirements for well destruction (including obtaining well destruction permits).

Notification to On-Farm Domestic Well Users

10. On an annual basis, Dischargers must provide well users with a summary of laboratory analytical results within **3 business days** of receiving results from the laboratory. Dischargers must also provide a summary of the most recent laboratory analytical results to any new well users (e.g., tenants and employees with access to the sampled well) within **3 business days** whenever there is a change in the population using the well. Dischargers may use the Drinking Water Notification template on the Central Coast Water Board website for provision of the analytical results summary, or an alternative notification form approved by the Executive Officer.

11. Notification of annual laboratory analytical result summaries to well users must include information regarding health risks associated with the following:

    a. Consuming, boiling, and/or cooking with well water containing nitrate in excess of the Maximum Contaminant Level (MCL:10 mg/L nitrate [or nitrate plus nitrite] as nitrogen).
    b. Consuming and/or showering with well water containing 1,2,3-TCP in excess of the MCL (0.005 µg/L).

12. All notification materials must be provided in appropriate languages to sufficiently inform well users

13. Dischargers must update their electronic Notice of Intent (eNOI) within **30 days** of receiving results from the laboratory to confirm the following:

    a. Well users have been provided with a summary of laboratory analytical results.
    b. Well users have been provided with information regarding health risks associated with well water containing nitrate and/or 1,2,3-TCP in excess of

their respective public health drinking water standards (i.e., maximum contaminant levels (MCLs).

c. Well users have an alternate source of water for domestic purposes if the sampled well contains nitrate and/or 1,2,3-TCP in excess of their respective MCLs.
d. If there has been a change in the population using the well in the past year (e.g., new tenants or residents), confirm that new well users have been provided with the information and resources described above.

Irrigation Wells Prior to the Start of Groundwater Quality Trend Monitoring

14. The objectives of sampling on-farm irrigation wells during the period between the effective date of this Order and the initiation of groundwater quality trend monitoring are as follows:

    a. To evaluate groundwater conditions in agricultural areas.
    b. To inform establishment of a groundwater quality trend monitoring network.

15. **Beginning in 2022,** all Dischargers must conduct annual sampling of the primary irrigation well **between March 1 and May 31**. Dischargers must report monitoring results by **July 31 each year**. This annual monitoring and reporting requirement will cease upon initiation of an Executive Officer-approved groundwater quality trend monitoring and reporting work plan.

16. At a minimum, samples must be analyzed for nitrate as nitrogen or nitrate + nitrite as nitrogen, total dissolved solids (TDS), and field parameters as specified in **Table MRP-6**.

Groundwater Quality Trend Monitoring

17. The objectives of groundwater quality trend monitoring and reporting are as follows:

    a. To evaluate the status of groundwater quality over time, including whether groundwater quality objectives are attained, and beneficial uses are protected.
    b. To quantitatively evaluate the impact of irrigated agricultural waste discharges to groundwater.
    c. To evaluate short-term patterns and long-term trends (five to ten years or more) in groundwater quality.

18. Dischargers must conduct groundwater quality trend monitoring and reporting, either individually or via membership in a third party that is approved by the Executive Officer.

Third Party Approach

19. An approved third-party representing Dischargers must develop and submit a regional groundwater trend monitoring and reporting work plan,[9] by the dates specified below or by an alternative schedule approved by the Executive Officer. Alternatively, Dischargers may elect to participate in the Third Party Alternative Compliance Pathway for Groundwater Protection (see **Order Part 2, Section C.2** and **Section D** in this MRP). The work plan must be prepared by a qualified professional and designed to quantitatively evaluate groundwater quality trends and quantitatively assess the impacts of agricultural discharges on groundwater quality over time.

    a. **September 1, 2023** for groundwater basins within Groundwater Phase 1 areas;
    b. **September 1, 2025** for groundwater basins within Groundwater Phase 2 areas;
    c. **September 1, 2027** for all other areas.

20. At a minimum, the work plan must include the following:

    a. Description of the geographic and hydrogeologic area(s) in which the groundwater quality trend monitoring program will be established, including identification of groundwater basins and subbasins, recharge and discharge areas, as well as supporting data and maps.
    b. Rationale for a sufficiently representative monitoring well network and sampling schedule to monitor discrete depth intervals with an emphasis on shallow or first encountered groundwater, including supporting soils, geologic, and hydrogeologic information such as cross-sections and groundwater depth and flow characteristics.
    c. Proposal for obtaining well completion reports and/or well driller's logs and maintain such data.
    d. Location and construction details associated with proposed wells composing the monitoring network, including existing and new wells.
    e. If applicable, a description of how data from existing monitoring networks will be incorporated into the groundwater quality trend monitoring program and how those data will be uploaded to GeoTracker.
    f. Table showing proposed monitoring parameters that will be evaluated to assess water quality changes over time. At a minimum, groundwater quality trend monitoring wells must be sampled for monitoring parameters included in **Table MRP-7**.

[9] Examples of acceptable scales covered by "regional" work plans could be at the groundwater basin or subbasin scale, the entire central coast region, or an area smaller than a groundwater subbasin with specific hydrogeologic conditions, such as recharge or discharge areas.

g. Proposed protocol used to evaluate trends in groundwater quality data, including statistical methods and data depiction.
h. Proposed reporting schedule for water quality and depth the groundwater data and trend analysis.
i. SAP and QAPP (see **Section G** below).

21. The third party is responsible for implementing a groundwater quality trend monitoring and reporting work plan on behalf of Dischargers who are third party members. Work plan implementation shall not begin until the Executive Officer has approved the work plan.

22. If one or more wells from an ongoing, established non-agricultural monitoring program are incorporated into the groundwater quality trend monitoring network, monitoring data from these wells must also be uploaded to the GeoTracker database and must comply with GeoTracker EDF and EDD criteria and protocols. Incorporation of such data must occur as described in the work plan approved by the Executive Officer.

Individual Approach

23. Dischargers electing to perform groundwater quality trend monitoring and reporting individually must submit an individual groundwater quality trend monitoring work plan to the Executive Officer for approval prior to implementation. Dischargers must submit the work plan by the following dates:

    a. **September 1, 2023** for ranches groundwater basins with Groundwater Phase 1 areas;
    b. **September 1, 2025** for ranches groundwater basins with Groundwater Phase 2 areas;
    c. **September 1, 2027** for ranches in all other areas.

24. At a minimum, the work plan must include the following:

    a. Identification and description of wells used for groundwater quality trend monitoring (in narrative form and in map view) with supporting technical rationale justifying the effectiveness of the well(s) in assessing ranch level groundwater quality trends over time.[10]
    b. Identification of the water-bearing zone monitored by each well used for groundwater quality trend monitoring.

[10] Acceptable justification for well inclusion in individual trend monitoring is well construction information typically included on well driller logs, also known as well completion reports. Dischargers are encouraged to locate all such well completion reports and submit the reports to the GeoTracker database as a Bore Log File (i.e., GEO_BORE) in pdf format. DWR is a repository for well completion reports, and Dischargers are encouraged to contact DWR or local well permitting authority to obtain these reports as necessary.

c. Proposed location(s) and well construction characteristics for any proposed new purpose-built monitoring wells to be used in groundwater quality trend monitoring if existing wells are not adequate for long-term monitoring.
d. Determination of the statistical method that will be used for groundwater quality trend evaluation.

25. The monitoring and reporting schedule and minimum list of testing parameters is shown in **Table MRP-8.**[11]

26. Dischargers must monitor wells used in groundwater quality trend monitoring on a semi-annual basis during the **first and third quarters of each calendar year**. Monitoring data must be reported to GeoTracker **by May 31 for sampling occurring in the first quarter** and **by November 30 for sampling occurring in the third quarter**.

27. Dischargers must submit a groundwater quality trend evaluation report by January 31 each year. The groundwater quality trend evaluation report must be provided in a format specified by the Executive Officer.

28. At a minimum, the groundwater quality trend evaluation report must include the following:

a. For each well used in groundwater quality trend monitoring, plots of concentration versus time for each monitoring parameter, except for field parameters pH, temperature, and specific conductance. The groundwater quality trend plots must reflect concentrations detected during each sampling event and are expected to expand over time.
b. Discussion of groundwater quality trends represented in the trend plots (i.e., increasing or decreasing groundwater quality trends, implications associated with farm management practices, etc.).

29. Dischargers who do not have a well on their property and do not choose to join a third-party program must still perform groundwater quality trend monitoring and reporting in accordance with **Table MRP-8**. Dischargers who do not have a well on their property may choose one of the following options for groundwater quality trend monitoring and reporting:

a. Install a monitoring well or wells as needed to sufficiently characterize groundwater quality trends.

[11] To the extent practicable, the depth to groundwater (in feet below ground surface) must also be measured and reported for wells used in individual groundwater trend determination. Measurements must be made from the same location at the top of the well that is accessible ("x"), and the height of that measuring location above the ground surface must also be measured ("y") for an accurate depth to water calculation (i.e., x – y = depth to groundwater below the ground surface).

b. Develop a coordinated groundwater quality trend monitoring and reporting program by partnering with adjacent property owner(s) with wells to sufficiently characterize groundwater quality trends.
c. Obtain authorization from adjacent property owners with one or more wells to collect water quality samples from their well or wells.
d. Obtain authorization from individual property owners or a third-party groundwater quality trend monitoring and reporting program to utilize their water quality data.

The conditions of "authorization" will be up to the negotiating parties, and documentation of the authorization will be a condition of the individual trend monitoring program work plan approval process.

30. Dischargers who obtain authorization from individual property owners (including adjacent property owners) or a third-party program for use of water quality data must document in the annual groundwater quality trend evaluation report how data obtained from wells not on the Discharger's property are representative of groundwater conditions at the Discharger's property.

Ranch-Level Groundwater Discharge

31. Based on groundwater quality data or significant and repeated exceedance of the nitrogen discharge targets or limits, the Executive Officer may require a Discharger to conduct ranch-level groundwater discharge monitoring and reporting[12]. Such monitoring and reporting efforts, including planning, must be explicitly designed and implemented to achieve the following objectives:

    a. Assess and quantify the Discharger's contribution to the exceedance of the nitrogen discharge targets or limits and the discharge of nitrogen below the root zone.
    b. Assess the timeframe over which discharge below the root zone occurs.
    c. Assess management practice implementation to identify management practices that can be implemented on the ranch to control or eliminate discharges below the root zone.
    d. Evaluate effects of the discharge on groundwater quality and beneficial uses with respect to applicable water quality objectives.
    e. Demonstrate compliance with applicable nitrogen discharge targets or limits and water quality objectives over time.

[12] Dischargers that are members in good standing with a third-party alternative compliance pathway program are exempt from ranch-level groundwater discharge monitoring and reporting, as noted in **Section D**.

32. **Within 120 days**[13] of being required by the Executive Officer to conduct ranch-level groundwater discharge monitoring, Dischargers must submit a work plan to the Executive Officer for approval prior to implementation. The workplan will be in a format specified by the Executive Officer. The Discharger may choose to submit and implement the work plan either individually or through participation in an approved third-party program. The work plan must include a SAP and QAPP (see **Section G** below) and the minimum following elements:

    a. Schedule for work plan implementation.
    b. Description of monitoring methodologies, frequencies and analytical methods to measure the concentration of nitrate and other relevant parameters in discharge water (i.e., percolation below the root zone).
    c. Description of monitoring methodologies and frequencies to measure the volume of water that percolates below the root zone.
    d. Proposal and justification for the reporting frequency for Ranch-Level Discharge Monitoring Reports.
    e. Description of how the Discharger's impact on groundwater quality will be quantified.
    f. Description of how ranch-level groundwater discharge monitoring data will be used to assess and improve management practices.
    g. Description of how nitrogen discharge targets/limits will be achieved over time.

33. **Within 90 days** of receiving Executive Officer approval of the work plan, or in accordance with an alternative schedule approved in the work plan, the Discharger must implement the work plan either individually or through participation in an approved third-party program.

34. Dischargers must select appropriate monitoring locations and methodologies to effectively characterize the concentration of nitrate and other relevant parameters in discharge water.

35. Dischargers must report ranch-level groundwater discharge monitoring data and information in Ranch-Level Discharge Monitoring Reports, in a format specified by the Executive Officer. Reported data and information must contain the items listed below, unless approved otherwise by the Executive Officer:

    a. The Discharger's ranch name and AGL number, site/test plot name(s), project contact, and report date.
    b. Map(s) depicting the location of monitoring sites/test plots.

[13] Central Coast Water Board staff will inform the Discharger and/or the third party representing the Discharger **90** days before the Executive Officer intends to require ranch-level discharge monitoring. The purpose of this advance notice is to provide flexibility to Dischargers in the event that circumstances beyond their control have adversely impacted the ability to achieve nitrogen discharge targets/limits by prescribed timeframes.

c. In tabular format, all monitoring data and information obtained over time, including field-measured and laboratory analytical results[14].
d. Calculations of pollutant loading, including equations used in the calculation.
e. Photographs of monitoring sites/test plots, including labels indicating photograph location and date.

Section D. Third-Party Alternative Compliance Pathway for Groundwater Protection

This section contains monitoring and reporting requirements associated with the development and implementation of the third-party alternative compliance pathway program for groundwater protection and the effectiveness assessment and evaluation outlined in **Order, Part 2, Section C.2**.

1. Members in good standing with the third-party alternative compliance pathway program are referred to as "participating Dischargers."

2. An approved third-party alternative compliance pathway program administrator, on behalf of its participating Dischargers, must develop and submit incremental draft and final work plans by the timeframes specified below.

    a. Submit the **first draft (35%) work plan** within 24 months of Order adoption.
    b. Submit the **second draft (70%) work plan** within 18 months of a first draft work plan conditional approval by the Executive Officer.
    c. Submit the **final (100%) work plan** within 10 months of a second draft work plan conditional approval by the Executive Officer.

3. The **first draft (35%) work plan** must include the following, at a minimum:

    a. Proposed groundwater protection (GWP) areas and supporting scientific justification,
    b. Proposed GWP formulas, objectives, and supporting scientific justification,
    c. GWP value methodology and objectives,
    d. GWP target methodology and objectives,
    e. Follow-up action and consequence concepts if targets are not achieved, and
    f. Assessment and evaluation program outline, methodology, and objectives.

4. The **second draft (70%) work plan** must include the following, at a minimum:

    a. Conditionally approved GWP areas,

[14] Chain-of-custody forms do not need to be submitted but must be made available to Central Coast Water Board staff upon request.

b. Conditionally approved GWP formulas,
c. Proposed GWP values, objectives, and supporting scientific justification,
d. Proposed GWP targets and supporting scientific justification,
e. Proposed follow-up actions and consequences if targets are not achieved, and
f. Draft assessment and evaluation program and associated objectives and rationale.

5. The **final (100%) work plan** must include the following, at a minimum:

a. Conditionally approved GWP areas,
b. Conditionally approved GWP formulas,
c. Conditionally approved GWP values,
d. Conditionally approved GWP targets,
e. Conditionally approved follow-up actions and consequences if targets are not achieved, and
f. Final assessment and evaluation program.

Monitoring and Reporting

6. Participating Dischargers must submit ACF, TNA, and INMP Summary information according to requirements outlined in the **Order, Part 2, Section C.1** and as described in this MRP in **Section B**.

7. Participating Dischargers must submit Groundwater Monitoring and Reporting information according to requirements outlined in the **Order, Part 2, Section C.1** and as described in this MRP in **Section C**.

8. Participating Dischargers are not required to conduct ranch-level groundwater discharge monitoring and reporting.

Section E. Surface Water Monitoring and Reporting

This section contains three types of monitoring and reporting related to surface water quality: ***Surface Receiving Water Quality Trends*** and ***Follow-Up Surface Receiving Water Implementation*** that are required of all Dischargers and ***Ranch-Level Surface Discharge*** that must be completed when required by the Executive Officer.

Surface Receiving Water Quality Trends

1. Surface receiving water refers to water flowing in creeks and other surface waters of the state. Surface receiving water monitoring and reporting must be conducted through either a monitoring program on behalf of Dischargers, or Dischargers may choose to conduct surface receiving water monitoring and reporting individually. Key monitoring and reporting requirements for surface receiving water monitoring are shown in **Table MRP-9** and **Table MRP-10**.

2. Dischargers, either individually or as part of a third-party program, must conduct surface receiving water monitoring and reporting to achieve the following:

    a. Evaluate the impact of irrigated agricultural waste discharges on receiving waters;
    b. Evaluate compliance with the numeric limits described in the Order;
    c. Evaluate the status of receiving water quality, including whether water quality objectives are attained, and beneficial uses are protected;
    d. Evaluate short-term patterns and long-term trends (five to ten years or more) in receiving water quality;
    e. Evaluate water quality impacts of tile drain discharges from irrigated agricultural operations;
    f. Evaluate water quality impacts of stormwater discharges from irrigated agricultural operations;
    g. Evaluate the condition of existing perennial, intermittent, and ephemeral streams and riparian and wetland areas, including degradation resulting from erosion or irrigated agricultural discharges of waste; and
    h. Assist in the identification of specific sources of water quality problems.

3. Prior to the initiation of the work plan process outlined below, entities wishing to implement a third-party program must submit a third-party program proposal consistent with the third-party program requirements outlined in Order, Part 2, Section A as well as the request for proposal process and associated third-party program expectations document forthcoming after Order adoption."

4. **By July 1, 2022**, Dischargers, either individually or as part of a third-party program, must submit a surface receiving water quality trends work plan including a Sampling and Analysis Plan (SAP) and Quality Assurance Project Plan (QAPP; see **Section G** below). The SAP must be developed to describe how the proposed monitoring will achieve the objectives of the MRP and evaluate compliance with the Order. The SAP may propose alternative monitoring and reporting site locations, adjusted monitoring parameters, and other changes as necessary to assess the impacts of irrigated agricultural wasted discharges to receiving water. The Executive Officer must approve the work plan, SAP, and QAPP prior to implementation.

5. Dischargers, either individually or as part of a third-party program, must perform surface receiving water quality trend monitoring and reporting in accordance with the work plan, SAP, and QAPP approved by the Executive Officer.

6. The work plan must, at a minimum, include monitoring sites to evaluate waterbodies identified in **Table MRP-9**, unless otherwise approved by the Executive Officer. The SAP must include sites to evaluate receiving water quality impacts most directly resulting from areas of irrigated agricultural discharge (including areas receiving tile drain discharges). Site selection must take into consideration the existence of any long-term monitoring sites included in related

monitoring programs (e.g., Central Coast Ambient Monitoring Program (CCAMP) and the existing third-party monitoring program). Sites may be added or modified, subject to prior approval by the Executive Officer, to better assess the pollutant loading from individual sources or the impacts to receiving waters caused by individual discharges. Any modifications must consider sampling consistency for purposes of trend evaluation.

7. The work plan must, at a minimum, include the types of monitoring and evaluation parameters listed below and identified in **Table MRP-10**.

    a. Flow monitoring;
    b. Water quality (physical parameters, metals, nutrients, pesticides);
    c. Toxicity (water and sediment);
    d. Assessment of benthic invertebrates, physical habitat monitoring, and Riparian Rapid Assessment Method (RipRAM) monitoring.

8. The work plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on the land use, complexity, hydrology, and size of the waterbody. **Table MRP-10** includes minimum monitoring frequency and parameter lists. Agricultural parameters that are less common may be monitored less frequently. Modifications to the receiving water quality monitoring parameters, frequency, and schedule must be submitted for Executive Officer consideration and approval. At a minimum, the SAP schedule must consist of monthly monitoring of common agricultural parameters, including two major storm events during the wet season (October 1 – April 30).

9. Water column toxicity analyses must be conducted on 100% (undiluted) samples. At sites where persistent unresolved toxicity is found, the Executive Officer may require concurrent toxicity and chemical analyses and a Toxicity Identification Evaluation (TIE) to identify the individual discharges causing the toxicity.

10. Stormwater monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event (see definition in Attachment C) that results in significant increase in stream flow. For the purposes of this MRP, a storm event is defined as precipitation producing onsite runoff (surface water flow) capable of creating significant ponding, erosion, or other water quality problems. A significant storm event will generally result in greater than a half-inch of rain within a 24-hour period.

11. **By January 1, April 1, July 1, and October 1 of each year**, Dischargers, either individually or as part of a third-party program, must submit water quality monitoring data electronically to CEDEN, according to CEDEN submittal guidelines, or in a format specified by the Executive Officer.

12. **By July 1 annually**, Dischargers, either individually or as part of a third-party program, must submit an Annual Report for the previous year of collected data,

electronically, in a format specified by the Executive Officer. The Annual Report must include the following minimum elements:

a. Signed transmittal letter;
b. Title page;
c. Table of contents;
d. Executive summary;
e. Monitoring objectives and design;
f. Monitoring site descriptions and rainfall records for the time period covered;
g. Location of monitoring sites and map(s);
h. Results of all analyses arranged in tabular form so that the required information is readily discernible;
i. Summary of water quality data for any sites monitored as part of related monitoring programs and used to evaluate receiving water as described in the SAP;
j. Discussion of data to clearly illustrate compliance with the Order, water quality standards, and surface water limits required by the Order, including watershed-level data analysis for each hydrologic subarea in **Table MRP-9** (for example data analysis and discussion for sub-watersheds 30510, 30530, etc.);
k. Discussion of short-term patterns and long-term trends in receiving water quality and beneficial use protection;
l. Evaluation of pesticide and toxicity analyses results, and recommendation of candidate sites for TIEs;
m. Sampling and analytical methods used;
n. Copy of chain-of-custody forms;
o. Field data sheets, signed laboratory reports, laboratory raw data;
p. Associated laboratory and field quality control samples results;
q. Summary of Quality Assurance Evaluation results;
r. The method used to obtain flow at each monitoring site during each monitoring event;
s. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date;
t. Potential follow-up actions to correct any observed exceedances of the surface water limits;
u. Conclusions.

Follow-Up Surface Receiving Water Implementation

13. Dischargers, either individually or as party of a third-party program, must develop a follow-up surface receiving water implementation work plan to achieve the following:

a. Identify and abate source of water quality impacts;
b. Evaluate the impact of irrigated agricultural waste discharges on receiving waters;
c. Evaluate the condition of existing perennial, intermittent, and ephemeral streams and riparian and wetland areas, including degradation resulting from erosion or irrigated agricultural discharges of waste;
d. Evaluate compliance with the numeric limits described in the Order; and
e. Identify follow-up actions, including outreach, education, additional monitoring and reporting, and management practice implementation that will be implemented to achieve compliance with the numeric limits described in the Order.

14. Prior to the initiation of the work plan process outlined below, entities wishing to implement a third-party program must submit a third-party program proposal consistent with the third-party program requirements outlined in **Order, Part 2, Section A** as well as the request for proposal process and associated third-party program expectations document forthcoming after Order adoption. Ranches that are enrolled as part of an approved third-party follow-up surface receiving water implementation program are assigned the Surface Water Priority of high priority, medium priority, or low priority of the drainage unit where the ranch is located, as shown in **Table C.3-1.3P** and the map shown in **Figure C-3.1.3P**.

15. The work plan must include the following minimum components:

    a. Description of implementation measures that will be taken to reduce the discharge of relevant constituents and comply with the limits established in the Order.
    b. Numeric interim quantifiable milestones to confirm progress is being made to reduce the discharge of relevant constituents and achieved the numeric limits established in the Order, consistent with their time schedule. Numeric quantifiable milestones include numeric interim quantifiable milestones for relevant constituents (e.g., pollutant load or concentration) and numeric interim quantifiable milestones for management practices implemented that confirm progress towards reducing the discharge of relevant constituents (e.g., volume of discharge water diverted to treatment systems, treatment system pollutant reduction, distance of riparian area improvements, acres no longer receiving conventional pesticide applications).
    c. Consideration of the level of water quality impairment identified through surface receiving water monitoring. Work plans for areas with persistent exceedances of the surface water limits in the Order must identify follow-up actions to restore the degraded areas (e.g., outreach, education, management practice implementation) and additional surface receiving water monitoring locations for pollutant source identification and

abatement. Work plans for areas that are already achieving the surface water limits in the Order must identify actions to be taken to protect the high-quality areas (e.g., outreach and education).

d. Where appropriate based on water quality data, follow-up monitoring sites to further evaluate the waterbody(s) specified by the Executive Officer. The work plan must include sites to evaluate receiving water quality impacts most directly resulting from areas of irrigated agricultural discharge (including areas receiving tile drain discharges). Site selection must take into consideration the existence of any long-term monitoring sites included in related monitoring programs (e.g., CCAMP and the existing third-party monitoring program). Sites may be added or modified, subject to prior approval by the Executive Officer, to better assess the pollutant loading from individual sources or the impacts to receiving waters caused by individual discharges.
e. SAP and QAPP (see **Section G** below). The SAP must be developed to describe how the proposed monitoring will achieve the objectives of the MRP, identify additional follow-up monitoring sites upstream of observed exceedances to identify sources of the exceedances, and evaluate compliance with the limits established in the Order.

16. The parameters to be monitored through follow-up monitoring may vary based on the water quality exceedances observed at downstream sites through the surface receiving water trend monitoring. The work plan must, at a minimum, include the types of monitoring and evaluation of parameters identified by the Executive Officer as requiring follow-up monitoring, such as the parameters listed below and identified in **Table MRP-10**.

    a. Flow monitoring;
    b. Water quality (physical parameters, metals, nutrients, pesticides); and
    c. Toxicity (water and sediment).

17. The work plan must include a schedule for sampling. Timing, duration, and frequency of monitoring must be based on the land use, complexity, hydrology, and size of the waterbody. **Table MRP-10** includes minimum monitoring frequency for parameters requiring follow-up monitoring by the Executive Officer. Agricultural parameters that are less common may be monitored less frequently. Modifications to the follow-up receiving water quality monitoring parameters, frequency, and schedule may be submitted for Executive Officer consideration and approval. At a minimum, the work plan schedule must consist of monthly monitoring of common agricultural parameters, including two major storm events during the wet season (October 1 – April 30).

18. If water column toxicity analyses must be conducted to comply with follow-up monitoring requirement, the analyses must be performed on 100% (undiluted) samples. At sites where persistent unresolved toxicity is found, the Executive

Officer may require concurrent toxicity and chemical analyses and a TIE to identify the individual discharges causing the toxicity.

19. Stormwater monitoring must be conducted within 18 hours of storm events, preferably including the first flush run-off event (see definition in **Attachment C**) that results in significant increase in stream flow. For the purposes of this MRP, a storm event is defined as precipitation producing onsite runoff (surface water flow) capable of creating significant ponding, erosion, or other water quality problems. A significant storm event will generally result in greater than half-inch of rain within a 24-hour period.

20. **By January 1, April 1, July 1, and October 1 of each year**, Dischargers, either individually or as part of a third-party program, must submit follow-up surface receiving water quality monitoring data electronically to CEDEN, according to CEDEN submittal guidelines, or in a format specified by the Executive Officer.

21. **By July 1 annually**, Dischargers, either individually or as part of a third-party program, must submit an Annual Report, electronically, in a format specified by the Executive Officer. The Annual Report must include the following minimum elements:

    a. Signed transmittal letter;
    b. Title page;
    c. Table of contents;
    d. Executive summary;
    e. Monitoring objectives and design;
    f. Monitoring site descriptions and rainfall records for the time period covered;
    g. Location of monitoring sites and map(s);
    h. Results of all analyses arranged in tabular form so that the required information is readily discernible;
    i. Summary of water quality data for any sites monitored as part of related monitoring programs and used to evaluate receiving water as described in the work plan;
    j. Discussion of data to clearly illustrate compliance with the Order, water quality standards, and surface water limits required by the Order;
    k. Discussion of specific information about the identified sources of water quality impairment;
    l. Discussion of management practice implementation and other follow-up activities performed to correct the persistent water quality impairment;
    m. Sampling and analytical methods used;
    n. Copy of chain-of-custody forms;
    o. Field data sheets, signed laboratory reports, laboratory raw data;
    p. Associated laboratory and field quality control samples results;
    q. Summary of Quality Assurance Evaluation results;

r. The method used to obtain flow at each monitoring site during each monitoring event;
s. Electronic or hard copies of photos obtained from all monitoring sites, clearly labeled with site ID and date; and
t. Conclusions.

Ranch-Level Surface Discharge

22. Based on exceedances of applicable surface water quality limits, including concentration and loading for all applicable parameters in their discharge, the Executive Officer, may require a Discharger to conduct ranch-level surface discharge monitoring and reporting. Such monitoring and reporting efforts, including planning, must be explicitly designed and implemented to achieve the following objectives:

    a. Assess and quantify the Discharger's contribution to the exceedance of applicable surface water quality limits, including concentration and loading for all applicable parameters in their discharge;
    b. Evaluate effects of the discharge on receiving water quality and beneficial uses; and
    c. Demonstrate compliance with applicable surface water limits and water quality objectives over time.

23. **Within 120 days**[15] of being required to conduct ranch-level surface discharge monitoring, Dischargers must submit a ranch-level surface discharge work plan, to the Executive Officer for approval prior to implementation. The workplan will be in a format specified by the Executive Officer. The Discharger may choose to submit and implement the work plan either individually or through participation in an approved third party. The work plan must include a SAP and QAPP (see **Section G**) designed to monitor individual discharges of irrigation water and stormwater that leave the ranch from an outfall location, including tile drain discharge points, and the minimum following elements.

    a. A schedule for work plan implementation;
    b. Description of monitoring methodologies, frequencies, and analytical methods of all applicable parameters where exceedances have occurred or are occurring;
    c. Description of monitoring methodologies and frequencies to measure flow volumes;
    d. Quantification of the Discharger's impact on surface water quality;

[15] Central Coast Water Board staff will inform the Discharger and/or the third party representing the Discharger **90** days before the Executive Officer intends to require ranch-level surface discharge monitoring. The purpose of this advance notice is to provide flexibility to Dischargers in the event that circumstances beyond their control have adversely impacted the ability to achieve surface receiving water limits by the compliance dates.

e. Description of how ranch-level surface discharge monitoring data will be used to assess and improve management practices; and
f. Description of how surface water quality limits and water quality objectives will be achieved over time.

24. **Within 90 days** of receiving Executive Officer approval, or in accordance with an alternate schedule approved in the work plan, the work plan must be implemented.

25. Dischargers must select monitoring sites that characterize both irrigation and stormwater discharges. For irrigation discharge, Dischargers must select monitoring points to characterize at least 80 percent of the estimated maximum irrigation discharge volume, based on the typical discharge patterns of the ranch, and must include points of tailwater and tile drain (if present) discharges. The SAP must be designed such that monitoring must occurs when it is highly probable that the irrigation discharge volume is the greatest during an irrigation event. Stormwater discharge sites must be selected to characterize the majority of stormwater discharge and must include first-flush monitoring. All selected monitoring sites must characterize discharge from the required farm/ranch, i.e., the discharge is not comingled with discharge from adjacent farms.

26. Dischargers must conduct monitoring for all parameters necessary to achieve the goals described for individual discharge monitoring.

27. Analytical methods, maximum practical quantitation limits (PQL), and reporting limits (RL) must be consistent with those outlined in Section G, or as approved by the Executive Officer.

28. Individual surface discharge sampling must occur at each site a minimum of four times per year, with one sample drawn during each of the following calendar quarters: **January to March**, **April to June**, **July to September**, **October to December**, or as approved by the Executive Officer.

29. **By March 1 and September 1 of each year**, Dischargers must submit individual surface discharge monitoring data and information. The information must be submitted electronically, in a format specified by the Executive Officer and must contain the items listed below, unless otherwise approved by the Executive Officer.

    a. All data and information from monitoring occurring in the preceding two calendar quarters and data not yet reported on previous semi-annual reports.
    b. Data in a tabular format, showing all data for each parameter and each monitoring event.
    c. Electronic laboratory data.
    d. All reports of results must contain the ranch name and Global ID, site name(s), project contact, and date.

e. Electronic laboratory data reports of chemical results must include analytical results, as well as associated quality assurance data including method detection limits, reporting limits, matrix spikes, matrix spike duplicates, laboratory blanks, and other quality assurance results required by the analysis method.
f. Electronic laboratory data reports of toxicity results shall include summary results comparable to those required in a CEDEN file delivery, including test and control results. For each test result, the mean, associated control performance, calculated percent of control, statistical test results and determination of toxicity, must be included. Test results must specify the control ID used to calculate statistical outcomes.
g. Field data results, including temperature, pH, conductivity, turbidity and flow measurements, any field duplicates or blanks, and field observations.
h. Calculations of un-ionized ammonia concentrations (based on total ammonia value and field measurements for pH and water temperature).
i. Calculations of total flow and pollutant loading (for nitrate, pesticides if sampled, total ammonia, and turbidity) (include formulas).
j. Location of sampling sites and map(s).
k. Sampling and analytical methods used.
l. Specify the method used to obtain flow at each monitoring site during each monitoring event.
m. Photos obtained from all monitoring sites, clearly labeled with location and date.
n. Sample chain-of-custody forms do not need to be submitted but must be made available to Central Coast Water Board staff, upon request.

Section F. Annual Compliance Form (ACF)

1. **By March 1, 2022, and annually thereafter by March 1**, all Dischargers must submit an ACF electronically, in a format specified by the Executive Officer. The ACF includes, but is not limited to, the items listed below.

    a. Irrigation, stormwater, and tile drain discharge characteristics (e.g., number of discharge points, estimated flow and volume, and number of tailwater days).
    b. Status of Farm Plan development and implementation.
    c. Identification of specific water quality management practices implemented and assessed for effectiveness on the ranch to reduce water quality impacts, including:
        i. Irrigation management practices;
        ii. Nutrient management practices;
        iii. Salinity management practices;
        iv. Pesticide management practices;
        v. Sediment and erosion management practices; and

vi. Stormwater management practices.

d. Reporting an estimation of riparian area (average width and length, in feet) for dischargers with waterbodies within or bordering their ranch.[16]
e. Reporting on water quality and management practice education obtained.

Section G. Sampling and Analysis Plan and Quality Assurance Project Plan

1. The Sampling and Analysis Plan (SAP) must include the following minimum components as applicable depending on the monitoring requirement:

    a. Monitoring strategy to achieve objectives of the Order and MRP;
    b. Map and Global Positioning System (GPS) coordinates of monitoring sites (e.g., well, receiving water locations, outfall locations etc.);
    c. Monitoring parameters;
    d. Monitoring schedule, including description and frequencies of monitoring events;
    e. Identification of beneficial uses and applicable water quality standards (with the following as appropriate for surface water monitoring);
    f. Identification of known water quality impairments and impaired waterbodies per the most recent USEPA approved Clean Water Act 303(d) List of Impaired Waterbodies (List of Impaired Waterbodies);
    g. Identification of applicable Total Maximum Daily Loads (TMDLs);
    h. Sample collection and handling procedures (e.g., preservation, storage, transport, holding times, etc.);
    i. Chain of custody procedures;
    j. Quality Assurance and Quality Control (QA/QC) sampling and analysis criteria and procedures;
    k. Data management and reporting procedures; and
    l. Description of data analytical methods, specifications, and limits (e.g., PQL and RL).

2. The QAPP must include site-specific information, project organization and responsibilities, and quality assurance components of the MRP. The QAPP must also include the laboratory and field requirements to be used for analysis and data evaluation. The QAPP must contain adequate detail for project and Water Board staff to identify and assess the technical and quality objectives, measurement and data acquisition methods, and limitations of the data generated under the monitoring program. All sampling and laboratory methodologies and QAPP content must be consistent with USEPA methods. Following USEPA guidelines,[17] the monitoring QAPP must include the following minimum required components:

[16] Staff guidance on how to measure and report riparian areas will be included on the Annual Compliance Form.

[17] USEPA. 2001 (2006) USEPA Requirements for Quality Assurance Project Plans (QA/R-5) Office of Environmental Information, Washington, D.C. USEPA QA/R-5.

a. Project Management: Address basic project management, including the project history and objectives, roles and responsibilities of the participants, and other aspects.
b. Data Generation and Acquisition: Address all aspects of project design and implementation. Implementation of these elements ensures that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and quality control activities are employed and are properly documented. Quality control requirements are applicable to all the constituents sampled as part of the MRP, as described in the appropriate method.
c. Assessment and Oversight: Address the activities for assessing the effectiveness of the implementation of the project and associated quality assurance (QA) and quality control (QC) activities. The purpose of the assessment is to provide project oversight that will ensure that the QAPP is implemented as prescribed.
d. Data Validation and Usability: Address the quality assurance activities that occur after the data collection, laboratory analysis and data generation phase of the project is completed. Implementation of these elements ensures that the data conform to the specified criteria, thus achieving the MRP objectives. The Executive Officer may conduct an audit of contracted laboratories at any time in order to evaluate compliance with the SAP and QAPP.

3. The SAP and QAPP, and any proposed revisions, are subject to approval by the Executive Officer. The Executive Officer may also revise the SAP, including adding, removing, or changing monitoring site locations, changing monitoring parameters, and other changes as necessary to assess the impacts of irrigated agricultural discharges on water quality.

Tables related to Monitoring and Reporting Requirements

Tables related to Section B: Irrigation and Nutrient Management Plan Monitoring and Reporting Requirements

Table MRP-1. Comparison of TNA and INMP Summary Monitoring and Reporting

Required Information	TNA Monitoring & Reporting	INMP Monitoring & Reporting
Nitrogen applied	X	X
Nitrogen removed		X
Irrigation management information	X	X

Table MRP-2. Monitoring and Reporting Schedule for Irrigation and Nutrient Management

Ranches	TNA[1] Monitoring Period[2]	TNA Report Due March 1	Annual INMP[3] Monitoring Period[2]	Annual INMP Summary Report Due March 1
Required per Ag Order 3.0	2021 2022	2022 2023	-	-
Groundwater Phase Area 1 [4]	-	-	Beginning 2023	Beginning 2024
Groundwater Phase Area 2	2023 2024	2024 2025	Beginning 2025	Beginning 2026
Groundwater Phase Area 3	2023 2024 2025 2026	2024 2025 2026 2027	Beginning 2027	Beginning 2028

[1] Only the primary irrigation well must be monitored for TNA monitoring and reporting.
[2] Monitoring period = calendar year (Jan. 1 – Dec. 31).
[3] All irrigation wells must be monitored for INMP monitoring and INMP Summary reporting.
[4] Dischargers in Groundwater Phase 1 areas are not required to submit a stand-alone TNA report; rather, due to the prioritization of Phase 1 areas, Dischargers in portions of the Gilroy-Hollister Valley (Llagas Area) groundwater basin, the Forebay Aquifer and Upper Valley subbasins of the Salinas Valley basin, the Santa Maria area of the Santa Maria River Valley basin, and the Santa Ynez River Valley basin must conduct the expanded nitrogen applied and removed monitoring and reporting associated with INMP Summary reporting before Dischargers in Groundwater Phase areas 2 and 3.

Table MRP-3. Organic Fertilizer Discount Factor

C to N Ratio of Organic Product	Discount Factor Based on Predicted Mineralization Rate (O)
< 1.5	1.00
1.5	0.904
2.0	0.852
2.5	0.802
3.0	0.754
3.5	0.707
4.0	0.661
4.5	0.617
5.0	0.574
5.5	0.533
6.0	0.493
6.5	0.455
7.0	0.418
7.5	0.383
8.0	0.349
8.5	0.317
9.0	0.285
9.5	0.256
10.0	0.228
10.5	0.202
11.0	0.177
11.5	0.153
12.0	0.131
12.5	0.111
13.0	0.091
13.5	0.074
14.0	0.058
14.5	0.043
15.0	0.030

Note: Refer to **Attachment A, Section C.1** for a discussion of the source of these discount factors.

Table MRP-4. Nitrogen Removal Conversion Coefficients

Crop	Conversion Coefficient	Crop	Conversion Coefficient
Alfalfa - Hay	**0.03115**	Lemons	**0.00154**
Alfalfa - Silage	**0.01200**	Lettuce, Baby	**0.00376**
Apples	**0.00050**	Lettuce, Iceberg	**0.00132**
Apricots	**0.00280**	Lettuce, Romaine	**0.00181**
Asparagus	**0.00293**	Melon, Cantaloupe	**0.00240**
Avocados	**0.00220**	Melon, Watermelon	**0.00070**
Barley - Grain	**0.01680**	Mixed Greens	**0.00405**
Barley - Straw	**0.00770**	Mizuna	**0.00405**
Beans, dry - Blackeye	**0.03650**	Oat Hay	**0.01085**
Beans, dry - Garbanzo	**0.03360**	Olives	**0.00314**
Beans, dry - Lima	**0.03615**	Onions, dry	**0.00197**
Beans, green (snap beans)	**0.00289**	Oranges	**0.00150**
Broccoli	**0.00460**	Peaches	**0.00113**
Brussels Sprouts	**0.00649**	Pears	**0.00065**
Cabbage Green	**0.00218**	Peppers, Bell	**0.00185**
Cabbage Red	**0.00224**	Pistachios	**0.02800**
Carrots	**0.00160**	Plums	**0.00142**
Cauliflower	**0.00288**	Potatoes	**0.00310**
Celery	**0.00120**	Pumpkin	**0.00368**
Cherries - Sweet	**0.00220**	Ryegrass, Perennial - Hay	**0.02745**
Cilantro	**0.00605**	Safflower	**0.02840**
Corn - Grain	**0.01200**	Spinach, Bunch	**0.00371**
Corn - Silage	**0.00378**	Spinach, Clip	**0.00427**
Corn - Sweet	**0.003585**	Spring Mix	**0.00405**
Cucumbers	**0.00108**	Squash, Winter	**0.001835**
Figs	**0.00127**	Strawberry	**0.00133**
Garlic	**0.00760**	Tangerines	**0.00127**
Grapefruit	**0.00150**	Tomatoes, Fresh Market	**0.00130**
Grapes - Table	**0.00113**	Walnuts, English	**0.01590**
Grapes - Wine	**0.00131**	Wheat, Common - Grain	**0.00690**
Kale, Baby	**0.00504**		

Note: Refer to **Attachment A, Section C.1** for a discussion of the source of these coefficients.

Tables related to Section C: Groundwater Monitoring and Reporting

Table MRP-5. On-Farm Domestic Drinking Water Supply Well Monitoring and Reporting Requirements

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
pH	0.1	Field Measurement[3]	pH Units	Annual (beginning 2022)	**Monitoring** March 1 – May 31 **Reported** by July 31
Specific conductance	2.5	Field Measurement[3]	µS/cm	Annual (beginning 2022)	**Monitoring** March 1 – May 31 **Reported** by July 31
Temperature	0.1	Field Measurement[3]	°C	Annual (beginning 2022)	**Monitoring** March 1 – May 31 **Reported** by July 31
Nitrate + nitrite (as N)[4] *or* Nitrate as N	0.1	USEPA Method 300 or SM 4500NO3	mg/L	Annual (beginning 2022)	**Monitoring** March 1 – May 31 **Reported** by July 31

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
1,2,3-Trichloropropane (1,2,3-TCP)	0.005	SRL-524M	µg/L	Annual per above for first 2 years (2022 & 2023). Continue annual monitoring and reporting until 2 consecutive samples = non-detect; then resample 3 years since last non-detect. If non-detect 3 years after last 2 consecutive non-detects, no further monitoring. If detected 3 years after last 2 consecutive non-detects, annual sampling resumes.	**Monitoring** March 1 – May 31 **Reported** by July 31

[1] Reporting limit, or level of quantification, defined as the level that can be reliably detected and quantified within acceptable limits of precision and bias for a given method.
[2] Dischargers may use alternative analytical methods approved by USEPA after obtaining Executive Officer approval.
[3] To ensure the collection of representative groundwater samples, all groundwater samples must be collected once field parameters stabilize (i.e., pH: ± 0.1, specific conductance: ± 3 – 5%, and temperature: ± 3%).
[4] This MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N). The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short sample holding time required for nitrate as N.

Table MRP-6. Primary Irrigation Well Monitoring and Reporting Requirements Until Groundwater Quality Trend Monitoring Program Starts ("Pre-Trend")

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
pH	0.1	Field Measurement[3]	pH Units	Annual until Groundwater Quality Trend Monitoring Program starts (beginning 2022)	**Monitoring** March 1 – May 31 **Reported** by July 31
Specific conductance	2.5	Field Measurement[3]	µS/cm	Annual until Groundwater Quality Trend Monitoring Program starts (beginning 2022)	**Monitoring** March 1 – May 31 **Reported** by July 31
Temperature	0.1	Field Measurement[3]	°C	Annual until Groundwater Quality Trend Monitoring Program starts (beginning 2022)	**Monitoring** March 1 – May 31 **Reported** by July 31
Total dissolved solids (TDS)	10	SM 2540-D	mg/L	Annual until Groundwater Quality Trend Monitoring Program starts (beginning 2022)	**Monitoring** March 1 – May 31 **Reported** by July 31
Nitrate + nitrite (as N)[4] *or* Nitrate as N	0.1	USEPA Method 300 or SM 4500NO3	mg/L	Annual until Groundwater Quality Trend Monitoring Program starts (beginning 2022)	**Monitoring** March 1 – May 31 **Reported** by July 31

[1] Reporting limit, or level of quantification, defined as the level that can be reliably detected and quantified within acceptable limits of precision and bias for a given method.
[2] Dischargers may use alternative analytical methods approved by USEPA after obtaining Executive Officer approval.
[3] To ensure the collection of representative groundwater samples, all groundwater samples must be collected once field parameters stabilize (i.e., pH: ± 0.1, specific conductance: ± 3 – 5%, and temperature: ± 3%).
[4] This MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N). The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short sample holding time required for nitrate as N.

Table MRP-7. Minimum Groundwater Quality Trend Monitoring and Reporting Requirements (Third-Party Option)

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
Depth to groundwater	±0.01	Field Measurement	Feet	In accordance with approved Work Plan	In accordance with approved Work Plan
pH	0.1	Field[3] or Laboratory Measurement or USEPA General Methods	pH Units	In accordance with approved Work Plan	In accordance with approved Work Plan
Specific conductance	2.5	Field[3] or Laboratory Measurement or USEPA General Methods	µS/cm	In accordance with approved Work Plan	In accordance with approved Work Plan
Temperature	0.1	Field[3] or Laboratory Measurement or USEPA General Methods	°C	In accordance with approved Work Plan	In accordance with approved Work Plan
Total dissolved solids (TDS)	10	SM 2540-D	mg/L	In accordance with approved Work Plan	In accordance with approved Work Plan
Total alkalinity as $CaCO_3$	-	USEPA Method 310.1 or 310.2	mg/L	In accordance with approved Work Plan	In accordance with approved Work Plan
Calcium	0.05	General Cations USEPA Method 200.7, 200.8, 200.9	mg/L	In accordance with approved Work Plan	In accordance with approved Work Plan
Magnesium	0.02	General Cations USEPA Method 200.7, 200.8, 200.9	mg/L	In accordance with approved Work Plan	In accordance with approved Work Plan
Sodium	0.1	General Cations USEPA Method 200.7, 200.8, 200.9	mg/L	In accordance with approved Work Plan	In accordance with approved Work Plan
Potassium	0.1	General Cations USEPA Method 200.7, 200.8, 200.9	mg/L	In accordance with approved Work Plan	In accordance with approved Work Plan

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
Sulfate (SO_4)	1.0	General Anions USEPA Method 300	mg/L	In accordance with approved Work Plan	In accordance with approved Work Plan
Chloride	0.1	General Anions USEPA Method 300	mg/L	In accordance with approved Work Plan	In accordance with approved Work Plan
Nitrate + Nitrite (as N)[3] *or* Nitrate as N	0.1	General Anions USEPA Method 300 or SM 4500NO3	mg/L	In accordance with approved Work Plan	In accordance with approved Work Plan

[1] Reporting limit, or level of quantification, defined as the level that can be reliably detected and quantified within acceptable limits of precision and bias for a given method.

[2] Dischargers may use alternative analytical methods approved by USEPA after obtaining Executive Officer approval.

[3] To ensure the collection of representative groundwater samples, all groundwater samples must be collected once field parameters stabilize (i.e., pH: ± 0.1, specific conductance: ± 3 – 5%, and temperature: ± 3%).

[4] This MRP allows analysis of “nitrate plus nitrite” to represent nitrate concentrations (as N). The “nitrate plus nitrite” analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short sample holding time required for nitrate as N.

Table MRP-8. Minimum Groundwater Quality Trend Monitoring and Reporting Requirements (Individual Option)

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
pH	0.1	Field[3] or Laboratory Measurement or USEPA General Methods	pH Units	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31
Specific conductance	2.5	Field[3] or Laboratory Measurement or USEPA General Methods	µS/cm	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
Temperature	0.1	Field[3] or Laboratory Measurement or USEPA General Methods	°C	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31
Total dissolved solids (TDS)	10	SM 2540-D	mg/L	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
Total alkalinity as $CaCO_3$	-	USEPA Method 310.1 or 310.2	mg/L	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31
Calcium	0.05	General Cations USEPA Method 200.7, 200.8, 200.9	mg/L	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
Magnesium	0.02	General Cations USEPA Method 200.7, 200.8, 200.9	mg/L	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31
Sodium	0.1	General Cations USEPA Method 200.7, 200.8, 200.9	mg/L	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
Potassium	0.1	General Cations USEPA Method 200.7, 200.8, 200.9	mg/L	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31
Sulfate (SO_4)	1.0	General Anions USEPA Method 300	mg/L	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31

Parameter	RL[1]	Analytical Method[2]	Units	Frequency	Due Date
Chloride	0.1	General Anions USEPA Method 300	mg/L	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31
Nitrate + Nitrite (as N)[4] *or* Nitrate as N	0.1	General Anions USEPA Method 300 or SM 4500NO3	mg/L	Semi-annual monitoring in 1st and 3rd quarters Semi-annual data reporting Annual Groundwater Quality Trend Reporting	1st Q semi-annual monitoring: January 1 – March 31 1st Q data reported by May 30 3rd Q semi-annual monitoring: July 1 – September 30 3rd Q data reported by November 30 Annual Groundwater Trend Report by January 31

[1] Reporting limit, or level of quantification, defined as the level that can be reliably detected and quantified within acceptable limits of precision and bias for a given method.

[2] Dischargers may use alternative analytical methods approved by USEPA after obtaining Executive Officer approval.[3] This MRP allows analysis of "nitrate plus nitrite" to represent nitrate concentrations (as N).

[3] The "nitrate plus nitrite" analysis allows for extended laboratory holding times and relieves the Discharger of meeting the short sample holding time required for nitrate as N.

[4] To ensure the collection of representative groundwater samples, all groundwater samples must be collected once field parameters stabilize (i.e., pH: ± 0.1, specific conductance: ± 3 – 5%, and temperature: ± 3%).

Tables related to Section E: Surface Water Monitoring and Reporting

Table MRP-9. Major Waterbodies in Agricultural Areas

Hydrologic SubArea	Waterbody Name	Hydrologic SubArea	Waterbody Name
30510	Pajaro River	30920	Quail Creek
30510	Salsipuedes Creek	30920	Salinas Reclamation Canal
30510	Watsonville Slough	31022	Chorro Creek
30510	Watsonville Creek	31023	Los Osos Creek
30510	Beach Road Ditch	31023	Warden Creek
30530	Carnadero Creek	31024	San Luis Obispo Creek
30530	Furlong Creek	31024	Prefumo Creek
30530	Llagas Creek	31031	Arroyo Grande Creek
30530	Miller's Canal	31031	Los Berros Creek
30530	San Juan Creek	31210	Bradley Canyon Creek
30530	Tesquisquita Slough	31210	Bradley Channel
30600	Moro Cojo Slough	31210	Green Valley Creek
30910	Alisal Slough	31210	Main Street Canal
30910	Blanco Drain	31210	Orcutt Solomon Creek
30910	Old Salinas River	31210	Oso Flaco Creek
30910	Salinas River (below Gonzales Rd.)	31210	Little Oso Flaco Creek
30920	Salinas River (above Gonzales Rd. and below Nacimiento R.)	31210	Santa Maria River
30910	Santa Rita Creek	31310	San Antonio Creek
30910	Tembladero Slough	31410	Santa Ynez River
30920	Alisal Creek	31531	Bell Creek
30920	Chualar Creek	31531	Glenn Annie Creek
30920	Espinosa Slough	31531	Los Carneros Creek
30920	Gabilan Creek	31534	Arroyo Paredon Creek
30920	Natividad Creek	31534	Franklin Creek

Note: At a minimum, monitoring sites must be included for these waterbodies in agricultural areas, unless otherwise approved by the Executive Officer. Monitoring sites may be proposed for addition or modification to better assess the impacts of waste discharges from irrigated lands to surface water. These waterbodies are included because they are listed waterbodies on the most recent USEPA approved 303(d) List of Impaired Waters that are associated with areas of agricultural discharge. The list is subject to change based on most recent USEPA approved 303(d) List of Impaired Waters and/or other changes approved by the Executive Officer.

Table MRP-10. Surface Receiving Water Quality Monitoring Parameters

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Photo Monitoring		
Upstream and downstream photographs at monitoring location	-	With every monitoring event
RipRAM		
RipRAM assessment and score at each monitoring location collected in accordance with the CCWG SOP	-	Annually beginning the first full calendar year following adoption of the Agricultural Order
Bioassessment		
Benthic invertebrate and associated physical habitat assessment collected in accordance with the SWAMP SOP. Data reported with CSCI numeric values for each monitoring location on Santa Ynez, Salinas, Santa Maria and Pajaro Rivers	-	Every five years beginning in 2023 from April-June
WATER COLUMN SAMPLING		
Physical Parameters and General Chemistry		
Flow (field measure) (CFS) following SWAMP field SOP[9]	0.25	Monthly, including 2 stormwater events
pH (field measure)	0.1	Monthly, including 2 stormwater events
Electrical Conductivity (field measure) (µS/cm)	2.5	Monthly, including 2 stormwater events
Dissolved Oxygen (field measure) (mg/L)	0.1	Monthly, including 2 stormwater events
Temperature (field measure) (°C)	0.1	Monthly, including 2 stormwater events

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Turbidity (NTU)	0.5	Monthly, including 2 stormwater events
Total Dissolved Solids (mg/L)	10	Monthly, including 2 stormwater events
Total Suspended Solids (mg/L)	0.5	Monthly, including 2 stormwater events
Total Alkalinity (as CaCO3)	EPA 310.1 or 310.2	4 times each year; once from each of the following calendar quarters: January – March, April – June, July – September, October – December.
Calcium	0.05	4 times each year; once from each of the following calendar quarters: January – March, April – June, July – September, October – December.
Magnesium	0.02	4 times each year; once from each of the following calendar quarters: January – March, April – June, July – September, October – December.
Sodium	0.1	4 times each year; once from each of the following calendar quarters: January – March, April – June, July – September, October – December
Potassium	0.1	4 times each year; once from each of the following calendar quarters: January – March, April – June, July – September, October – December.
Sulfate (SO4)	1.0	4 times each year; once from each of the following calendar quarters: January – March, April – June, July – September, October – December.
Chloride	0.1	4 times each year; once from each of the following calendar quarters: January – March, April – June, July – September, October – December.
Nutrients		
Total Nitrogen (mg/L)	0.5	Monthly, including 2 stormwater events

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Nitrate + Nitrite (mg/L as nitrogen)	0.1	Monthly, including 2 stormwater events
Total Ammonia (mg/L)	0.1	Monthly, including 2 stormwater events
Unionized Ammonia (calculated value including total ammonia and field measures of water temperature and pH, mg/L as nitrogen)	-	Monthly, including 2 stormwater events
Total Phosphorus (as P) (mg/L)	0.02	Monthly, including 2 stormwater events
Soluble Orthophosphate (mg/L)	0.01	Monthly, including 2 stormwater events
Water column chlorophyll a (µg/L)	1.0	Monthly, including 2 stormwater events
Algae cover, Floating Mats, % coverage	-	Monthly, including 2 stormwater events
Algae cover, Attached, % coverage	-	Monthly, including 2 stormwater events
Water Column Toxicity Test		
Algae - *Selenastrum capricornutum (*96-hour chronic; Method1003.0 in EPA/821/R-02/013)	-	4 times each year; once from each of the following calendar quarters: January – March, April – June, July – September, October – December.
Water Flea – *Ceriodaphnia dubia* (7-day chronic; Method 1002.0 in EPA/821/R-02/013)	-	4 times each year; once from each of the following calendar quarters: January – March, April – June, July – September, October – December.
Midge - *Chironomus spp.* (96- hour acute; Alternate test species in EPA 821-R-02-012)	-	4 times each year; once from each of the following calendar quarters: January – March, April – June, July – September, October – December.
Toxicity Identification Evaluation (TIE)	-	As directed by Executive Officer

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Pesticides[2] (Insecticides and Herbicides) (µg/L)		
Organophosphate Pesticides		
Azinphos-methyl	0.02	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Chlorpyrifos	0.005	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Diazinon	0.005	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Dichlorvos	0.01	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Dimethoate	0.01	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Dimeton-s	0.005	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Disulfoton (Disyton)	0.005	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Malathion	0.005	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Methamidophos	0.02	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Methidathion	0.02	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Parathion-methyl	0.02	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Phorate	0.01	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Phosmet	0.02	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Neonicotinoids		
Thiamethoxam	0.002	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Imidacloprid	0.002	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Thiacloprid	0.002	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Dinotefuran	0.006	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Acetamiprid	0.01	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Clothianidin	0.02	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Carbamates		
Aldicarb	0.05	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Carbaryl	0.05	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Carbofuran	0.05	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Methiocarb	0.05	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Methomyl	0.05	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Oxamyl	0.05	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Herbicides		
Atrazine	0.05	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Cyanazine	0.20	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Diuron	0.05	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Glyphosate	2.0	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Linuron	0.10	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Paraquat	0.20	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Simazine	0.05	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.
Trifluralin	0.05	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September, and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Metals (µg/L)		
Arsenic (total) [5,7]	0.3	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September and October – December.
Boron (total) [6,7]	10	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September and October – December.
Cadmium (total & dissolved) [4,5,7]	0.01	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Copper (total and dissolved) [4,7]	0.01	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September and October – December.
Lead (total and dissolved) [4,7]	0.01	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September and October – December.
Nickel (total and dissolved) [4,7]	0.02	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Molybdenum (total) [7]	1	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September and October – December.
Selenium (total)[7]	0.30	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September and October – December.
Zinc (total and dissolved) [4,5,7]	0.10	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters: January – March, April – June, July – September and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Other (µg/L)		
Total Phenolic Compounds[8]	5	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters concurrent with water toxicity monitoring: January – March, April – June, July – September and October – December.
Hardness (mg/L as CaCO3)	1	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters concurrent with water toxicity monitoring: January – March, April – June, July – September and October – December.
Total Organic Carbon (ug/L)	0.6	2 times in 2021 concurrent with water toxicity monitoring; once from July – September and once from October – December. 2 times in 2022 concurrent with water toxicity monitoring; once from January – March and once from April – June. Then, 4 times every fourth year beginning in 2026 concurrent with water toxicity monitoring from each of the following calendar quarters concurrent with water toxicity monitoring: January – March, April – June, July – September and October – December.

Parameters and Tests	RL[3]	Monitoring Frequency[1]
SEDIMENT SAMPLING		
Sediment Toxicity - *Hyalella azteca* 10-day static renewal (EPA, 2000)	-	2 times in 2021; once from April – June and once from August – October. Then once per year in calendar quarter April – June.
Pyrethroid Pesticides in Sediment (µg/kg)		
Gamma-cyhalothrin	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June
Lambda-cyhalothrin	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June “
Bifenthrin	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Beta-cyfluthrin	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June
Cyfluthrin	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June
Esfenvalerate	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June
Permethrin	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June
Cypermethrin	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Danitol	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June
Fenvalerate	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June
Fluvalinate	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June
Other Monitoring in Sediment		
Chlorpyrifos (µg/kg)	2	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June

Parameters and Tests	RL[3]	Monitoring Frequency[1]
Total Organic Carbon	0.01%	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June
Sediment Grain Size Analysis	1%	1 time in 2021 from August – October concurrent with sediment toxicity sampling and 1 time in 2022 from April – June concurrent with sediment toxicity sampling. Then, once every fourth year beginning in 2026 concurrent with sediment toxicity monitoring, in calendar quarter April – June

[1]Minimum monitoring frequency may be used as a guide for developing alternative Sampling and Analysis Plans implemented by individual growers.
[2]Pesticide list may be modified based on specific pesticide use in Central Coast Region. Analytes on this list must be reported, at a minimum.
[3] Reporting Limit, taken from SWAMP where applicable.
[4] Holmgren, Meyer, Cheney, and Daniels. 1993. Cadmium, Lead, Zinc, Copper and Nickel in Agricultural Soils of the United States. J. of Environ. Quality 22:335-348.
[5]Sax and Lewis, ed. 1987. Hawley's Condensed Chemical Dictionary. 11th ed. New York: Van Nostrand Reinhold Co., 1987. Zinc arsenate is an insecticide.
[6]Boron is applied directly or as a component of fertilizers as a plant nutrient.
[7]Madramootoo, Johnston, Willardson, eds. 1997. Management of Agricultural Drainage Water Quality. International Commission on Irrigation and Drainage. U.N. FAO. SBN 92-6-104058.3.
[8] Include Nonylphenol. Phenols are breakdown products of herbicides and pesticides. Phenols can be directly toxic and cause endocrine disruption. Requirement may be removed or modified based on 2019-2020 monitoring results.
[9]See SWAMP field measures SOP, p. 17
mg/L – milligrams per liter; ug/L – micrograms per liter; ug/kg – micrograms per kilogram;
NTU – Nephelometric Turbidity Units; CFS – cubic feet per second.