General Waste Discharge Requirements for Commercial Vineyards in the North Coast Region

Attachment B: Monitoring and Reporting Program for Enrollees in a Coalition

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Attachment B: Monitoring and Reporting Program for Enrollees in a Coalition

I. Summary

The Monitoring and Reporting Program (MRP) for Enrollees in an approved Coalition consists of on-farm monitoring (Management Practice Effectiveness Monitoring and Drinking Water Supply Well Monitoring) to assess the effectiveness of management practices and assess on-farm drinking water; and representative surface and groundwater monitoring (Tributary Streambed Monitoring, Representative Pesticide Monitoring, and Groundwater Trend Monitoring) to characterize and analyze trends in water quality related to impacts from commercial vineyards.

Enrollees shall conduct Management Practice Effectiveness Monitoring in accordance with their chosen Sediment and Erosion Control Compliance Pathway and sample all Drinking Water Supply Wells on every enrolled parcel in the Order. Enrollees shall complete a Farm Evaluation and Irrigation and Nutrient Management Plan (INMP) and submit them to the Coalition. The Coalition shall aggregate Enrollee management practice and nitrogen application reporting (Farm Evaluation and INMP) data and Management Practice Effectiveness Monitoring data into an Annual Compliance Report that is submitted to the North Coast Water Board.

By **July 1, 2031**, the Coalition shall submit a Water Quality Monitoring Workplan (Workplan) to the North Coast Water Board Executive Officer for approval, which details all group surface water and groundwater monitoring requirements on behalf of their Enrollees. The Coalition shall implement this Workplan and report results annually in the Annual Monitoring Report and every five years in a Trend Monitoring Report. By **July 1st**, seven years following initial INMP reporting, the Coalition may propose a methodology for determining statistical outliers in nitrogen reporting for approval by the North Coast Water Board Executive Officer. All water quality monitoring data (except Agricultural Drainage Structure Monitoring) shall be reported in a format consistent with Water Boards' various data management systems (e.g., surface water data to CEDEN, groundwater data to GeoTracker).

A master schedule of Enrollee deliverables is provided in Table B.1 below. A schedule of deliverables for Coalitions on behalf of their enrolled Enrollees is provided in Table B.2 below. The Executive Officer may modify the MRP, as necessary or appropriate, at a future date.

Table B.1: Enrollee Monitoring Master Schedule

Requirement	Initial Due Date	Frequency	Submit to
Drinking Water Well Sampling	By **July 1, 2030**	Varies; See Section II.B	GeoTracker

Requirement	Initial Due Date	Frequency	Submit to
Management Practice Effectiveness Monitoring[1]	By **July 1, 2030**	Every five years	Coalition

Table B.2: Enrollee Reporting Master Schedule

Requirement	Initial Due Date	Frequency	Submit To:
Farm Evaluation and Irrigation and Nutrient Management Plan (INMP)	By a date set by the Coalition that accommodates inclusion into an initial Annual Compliance Report submittal deadline of **July 1, 2030**	Annually	Coalition

Table B.3: Coalition Monitoring Master Schedule

Requirement	Frequency	Where to Report Results
Tributary Streambed Monitoring	Following approval of Workplan: Year 1, Year 4, and every five years thereafter	Trend Monitoring Report
Representative Pesticide Monitoring	Every five years	Trend Monitoring Report
Groundwater Trend Monitoring	Annually	Annual Monitoring Report and Trend Monitoring Report

Table B.4: Coalition Reporting Master Schedule

Requirement	Elements of Report	Submittal Deadline and Frequency
Water Quality Monitoring Workplan (Workplan)	Surface and Groundwater Quality Monitoring Workplans	Preliminary scope of work due **January 1, 2031**. Workplan due **July 1, 2031**. Submit to North Coast Water Board Executive Officer

Requirement	Elements of Report	Submittal Deadline and Frequency
Statistical Outlier Methodology (Optional)	AR outlier determination	**July 1st**, seven years following initial INMP reporting
Annual Compliance Report	Participant list, Management Practice data (Farm Evaluation, Irrigation and Nutrient Management Plan); AR calculations and outlier reporting, education and outreach tracking, CEQA Mitigation Monitoring.	By **July 1, 2030**, and by July 1st annually thereafter.
Annual Monitoring Report	Management Practice Effectiveness Monitoring	By **July 1, 2030** and annually thereafter.
Water Quality Trend Monitoring Report (Trend Monitoring Report)	Tributary Streambed Monitoring, Representative Pesticide Monitoring and Groundwater Trend Monitoring from the previous five years, trend analysis, and conclusions.	Within five years of approval of Water Quality Monitoring Workplan and by **July 1st** every five years thereafter.

II. Water Quality Monitoring Requirements for Enrollees

Enrollees shall conduct on-farm monitoring that consists of: (1) Management Practice Effectiveness Monitoring, and (2) Drinking Water Supply Well Monitoring.

A. Management Practice Effectiveness Monitoring

Enrollees shall conduct Management Practice Effectiveness Monitoring based on the Implementation Standard of the Sediment and Erosion Control Compliance Option they have chosen in accordance with Section II.C of the Order. Enrollees will either be required to conduct Agricultural Drainage Structure Monitoring or Photo-point Monitoring. The purpose of Management Practice Effectiveness Monitoring is to (1) assess the effectiveness of management practices at preventing erosion and controlling sediment discharge; and (2) drive Adaptive Management.

Agricultural Drainage Structure Monitoring Requirements

1) The Enrollee or Coalition shall annually monitor turbidity values in at least 20 percent of Agricultural Drainage Structures across their enrolled parcels at the outlet that discharges from the Farm Area to surface waters. Enrollees shall choose monitoring locations that are representative of the range in watershed characteristics, tributary area, slope, soil type, and farming practices across all their applicable enrolled parcels. Upon notice from the Executive Officer that monitoring locations chosen by the Enrollee are not representative, the Enrollee shall propose and begin implementing for monitoring new locations for concurrence by the Executive Officer. The Executive Officer has the discretion to determine representative or additional monitoring locations.

2) Agricultural Drainage Structures shall be assigned an anonymous location ID and aggregated and reported at the HUC-12 level[2].

3) Turbidity values in Agricultural Drainage Structures shall be monitored during a Qualifying Storm Event from the first two hours of discharge which occurs during daylight hours using a calibrated[3] turbidity meter (turbidimeter), either on-site or at an accredited lab. Acceptable laboratory test methods include Standard Method 2130 or USEPA Method 180.1[4]. Results shall be recorded in Nephelometric Turbidity Units (NTU). Representative discharge for the purposes of Agricultural Drainage Structure Sampling should not include periods of inundation from flood waters.

4) Samples shall be collected, maintained, and shipped in accordance with the current version of the SWAMP Quality Assurance Third-Party Plan[5] or the Sampling Collection and Handling procedures outlined in Attachment D: Methodologies and Procedures.

5) The Coalition shall include annual Agricultural Drainage Structure Monitoring results in the Annual Monitoring Report as described in Section V.B of this MRP. If an Enrollee is unable to collect samples in any given year due to lack of discharge or unsafe conditions, the Enrollee shall include in the submittal of their annual Agricultural Drainage Structure Monitoring results documentation explaining why the sampling did not occur. Documentation may include, but may not be limited to weather reports, photographs of unsafe conditions, or other written explanation.

Exceedances of Turbidity Benchmark and Adaptive Management

6) Enrollees with Agricultural Drainage Structures that exceed the turbidity benchmark of 250 NTU shall be notified by the Coalition and included on the Flagged Table of the Participant List in accordance with Section V.A of this MRP.

7) Following an exceedance of an Agricultural Drainage Structure, when it is safe and reasonable to do so, the Enrollee shall implement Temporary Sediment Controls[6]

or management practices[7] to prevent or minimize erosion, control mobilization of sediment to that ag drainage structure and control the discharge of sediment from that ag drainage structure. Examples of temporary sediment controls may include but are not limited to hay bales and linear sediment controls such as silt fences and wattles. These in-season repairs shall be implemented in response to every ag drainage structure exceedance.

8) The Agricultural Drainage Structure at which the benchmark exceedance occurred shall be monitored in each subsequent Qualifying Storm Event following repair until there are no further exceedances, at which point the Enrollee may return to monitoring that location annually. If the Agricultural Drainage Structure continues to experience exceedances of the benchmark during the final QSE of the year, the Enrollee shall resume monitoring that location at the first QSE in the following year.

9) If an Agricultural Drainage Structure has exceedances of the 250 NTU turbidity benchmark in two consecutive years, the Enrollee shall continue to implement in-season repairs and attend a training focused on sediment erosion and control management practices. This event may also serve as the Enrollee's annual outreach and education event as required by the Order; however, the primary subject of the training must include sediment and erosion control management practices.

10) If an Agricultural Drainage Structure has exceedances of the 250 NTU turbidity benchmark in three consecutive years, the Enrollee shall implement in-season repairs and shall append to their Farm Evaluation an Adaptive Management Assessment which is comprised of:

    a) A review of the management practices for compliance with approved management practices standards[8], and any management practice improvements needed to minimize or prevent erosion and the discharge of sediment to surface water.

    b) Photographs of all management practices implemented to minimize or prevent sediment discharge to that Agricultural Drainage Structure or discharge point.

    c) Documentation of education or attendance of outreach event focused on sediment erosion and control management practices.

11) If an Agricultural Drainage Structure or drainage point has exceedances of the 250 NTU turbidity benchmark in four consecutive years, the Enrollee shall develop and implement a Water Quality Management Plan as described in Section II.E of the Order.

Offsite Stormwater Run-on

12) In the case of run-on from concentrated flow (including ag drainage structures) from Offsite Sources[9], the Enrollee may sample the run-on where it enters the planted area, Appurtenant Agricultural Roads, structures, or areas of the commercial vineyard and adjust the turbidity benchmark to 250 NTUs above the run-on turbidity value in all Agricultural Drainage Structures that receive discharge from that run-on location. In the case of multiple run-on sources into the same Agricultural Drainage Structure, the Enrollee may discount the run-on turbidity value from the source with the highest estimated flow rate.

13) In the case of run-on resulting in soil erosion on the enrolled parcel that delivers sediment to an Agricultural Drainage Structure, the Enrollee may submit a demonstration to the Executive Officer that the soil erosion is solely attributable to the run-on that originates off the enrolled parcel. The determination shall include a map showing location(s) of run-on and run-on associated erosion, photographs, and all records necessary to demonstrate that the offsite run-on is solely responsible for erosion and sediment mobilization resulting in turbidity benchmark exceedance(s). The determination shall be certified by a Qualified Professional. Upon Executive Officer approval of this determination, the Enrollee shall continue sampling those impacted Agricultural Drainage Structures every five years and reporting results but is not obligated to perform adaptive management or corrective action in response to turbidity benchmark exceedances in the impacted Agricultural Drainage Structure. An update of this determination shall be submitted to the Executive Officer for approval every five years in order for the Enrollee to be exempt from Adaptive Management or corrective action in response to turbidity benchmark exceedances. This update shall be certified by a Qualified Professional.

14) The Enrollee shall characterize the land-use source of the Offsite Stormwater run-on as part of submission of their Agricultural Drainage Structure Monitoring results. For each monitoring result in which the Enrollee either discounts the Offsite Stormwater run-on value or has submitted and received approval of a determination by the Executive Officer, the Enrollee shall report the general land-use(s) immediately upslope that is the source of the run-on. This information will be submitted as part of the Annual Water Quality Monitoring Report by the Coalition.

15) Onsite sources of waste discharge that are not appurtenant to the vineyard operation on the enrolled parcel(s) may be subject to a ROWD and individual waste discharge requirements, a WQMP, or another regulatory mechanism

Photo-Point Monitoring Requirements

16) For Enrollees choosing Option D: No-Till Ground Cover as a Sediment and Erosion Control Compliance Option, one photo-point per Sediment Management Area shall be established and annually monitored to verify that Ground Cover is present at a level the Regional Board has established to be effective at preventing, controlling,

or minimizing sediment discharge to surface waters (i.e., 90%). Photo-points shall be depicted on the Enrollee's Farm Evaluation map. Photographs shall be maintained at the Enrollee's farming headquarters or primary place of business and shall be provided to North Coast Water Board staff on request.

17) For Enrollees with a Certified SECP, the objective of Photo-point Monitoring is a qualitative indication that implemented management practices are effective at preventing, controlling, or minimizing sediment discharge to surface waters. At a minimum, photo-points shall be established and annually monitored at the following locations: (1) at locations representative of the range in tributary area, slope, soil type, and farming practices across the applicable enrolled parcels to monitor Ground Cover and other applicable sediment and erosion control management practices; (2) at each Agricultural Drainage Structure; (3) at sites representative of the Appurtenant Agricultural Road network; and (4) at locations identified by the Qualified Professional which have been prioritized for management practice implementation or repair. Photos and associated field notes shall be appended to the Enrollee's Certified SECP.

18) Guidance regarding establishment and protocols for photo-point monitoring are provided by the NRCS Quick Guide to Photo Monitoring[10].

B. Drinking Water Supply Well Monitoring

1) The purpose of the drinking water supply well sampling is to: (1) identify drinking water wells that have nitrate concentrations that exceed the Maximum Contaminant Level (MCL) of 10 mg/L (milligrams per liter) of nitrate+nitrite as N; (2) identify drinking water wells that have California Department of Pesticide Regulation (CDPR) 6800(a)[11] list pesticide concentrations that exceed the Human Health Reference Level (HHRL), the Primary MCL, or a Public Health Goal; and (3) notify any drinking water well users of the potential for human health impacts.

General Monitoring Requirements

2) Enrollees shall sample all private Drinking Water Supply Wells located on their enrolled parcels for nitrates and one representative private drinking water supply well for CDPR 6800(a) listed pesticides that the Enrollee has applied on any of their enrolled parcels in the previous five years.

3) The initial sampling event must be completed in time to allow for the results to be submitted electronically to the State Water Board's GeoTracker database by **July 1, 2030**. Enrollees may elect to work with a Coalition to fulfill the sampling requirements of this section.

4) Groundwater samples shall be collected using proper sampling methods, chain-of custody, and quality assurance/quality control protocols. Groundwater samples shall be collected at or near the well head before the pressure tank and prior to any

well head treatment. In cases where this is not possible, the water sample shall 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 systems.

5) Laboratory analyses for groundwater samples shall be conducted by an Environmental Laboratory Accreditation Third-Party (ELAP)-certified laboratory[12] according to the USEPA approved methods; unless otherwise noted, all monitoring, sample preservation, and analyses shall be performed in accordance with the latest edition of Test Methods for Evaluating Solid Waste, SW-846, USEPA[13], and analyzed as specified herein by the above analytical methods and reporting limits indicated. Certified laboratories can be found on the Water Board's ELAP website (https://www.waterboards.ca.gov/drinking_water/certlic/labs/index.html).

6) All drinking water supply well monitoring data shall be submitted electronically to the State Water Board's GeoTracker database by the testing laboratory. Any existing data may be submitted to GeoTracker by the Enrollee. All data submitted shall include the Assessor's Parcel Number (APN) where the drinking water supply well is located and the coordinates (latitude and longitude) of the drinking water supply well.

Drinking Water Well Sampling for Nitrates

7) Initial Sampling: Enrollees shall conduct annual drinking water supply well sampling for nitrates for three years. In lieu of one or more of these initial three annual tests, Enrollees may submit one or more annual drinking water supply well sampling results from one or more of the five prior years, provided: (1) nitrate sampling of a drinking water well was completed prior to enrollment in the Order, and (2) sampling and testing for nitrate was completed using USEPA-approved methods and by an ELAP-certified laboratory.

8) Sampling Frequency: If the nitrate concentration is above 5 mg/L nitrate+nitrite as N in any of the first three annual samples, Enrollees shall continue conducting annual drinking water supply well sampling for nitrates. If the nitrate concentration is below 5 mg/L nitrate+nitrite as N in three consecutive annual samples, Enrollees may conduct sampling every five years. Sampling once every five years may continue unless the nitrate concentration exceeds 5 mg/L, in which case the Enrollee must sample annually until the nitrate concentration is below 5 mg/L for three consecutive years. An alternative sampling schedule based on trending data for the well may be required by the Executive Officer at any time.

9) Terminating Sampling: Sampling may cease if a drinking water well is taken out of service or no longer provides drinking water because sufficient replacement water is being supplied. Enrollees shall keep any records (e.g., photos, bottled water receipts) establishing that the well is not used for drinking water.

10) Exceedances: If water in any well that is used for drinking water exceeds 10 mg/L of nitrate+nitrite as N, the Enrollee shall provide notice to the drinking water well users within 10 days of learning of the exceedance and send a copy of the notice to the North Coast Water Board. If the Enrollee is not the owner of the parcel enrolled in the Order, the Enrollee may provide notice instead to the owner within 24 hours of learning of the exceedance, and the owner shall provide notice to the drinking water well users within nine days and send a copy of the notice to the North Coast Water Board.

11) Form of Notice: At a minimum, the Enrollee or non-Enrollee owner shall notify drinking water well users of the exceedance by providing them a copy of a Drinking Water Notification Template approved by the Executive Officer. The template shall be signed by the Enrollee or non-Enrollee owner certifying notice has been provided to the users. A copy of the signed template shall be sent to the North Coast Water Board and retained by the Enrollee or non-Enrollee owner.

Drinking Water Supply Well Sampling for Pesticides

12) Sampling: Enrollees shall sample one representative well[14] every five years for any CDPR 6800(a) listed pesticides that were applied on any of the Enrollee's enrolled parcels in the five years prior. In lieu of the initial sample, Enrollees may submit drinking water supply well sampling results from the five prior years, provided: (1) sampling of the drinking water well was completed prior to enrollment in the Order, and (2) sampling and testing for the pesticide(s) were completed using USEPA-approved methods and by an ELAP-certified laboratory; and that sampling event occurred at least one year following the application of the pesticide(s).

13) Sampling Frequency: If the sampled concentration of a pesticide exceeds the any of the following three values: (1) the CDPR Human Health Reference Level (HHRL)[15], (2) the Primary MCL, or a (3) Public Health Goal, the Enrollee shall sample all their drinking water wells for that pesticide in the following year. Annual sampling shall continue for all wells with exceedances for that pesticide until the concentration is below the exceedance level for two consecutive years. Enrollees may then sample for that pesticide once every five years until the pesticide has not been applied in any of the five years prior to the sampling year. The Enrollee may then cease sampling for that pesticide in all drinking water wells. An alternative sampling schedule based on trending data for the well may be required by the Executive Officer at any time.

14) Terminating Sampling: Sampling may cease if a drinking water well is taken out of service or no longer provides drinking water because sufficient replacement water is being supplied. Enrollees shall keep any records (e.g., photos, bottled water receipts) establishing that the well is not used for drinking water.

15) Exceedances: If water in any well that is used for drinking water exceeds either CDPR's Human Health Reference Levels (HHRLs), the Primary MCL, or a Public

Health Goal, the Enrollee shall notify users of the drinking water well within ten days of learning of the exceedance and send a copy of the notice to the North Coast Water Board. If the Enrollee is not the owner of the parcel enrolled in the Order, the Enrollee may provide notice instead to the owner within 24 hours of learning of the exceedance, and the owner shall provide notice to the drinking water well users within nine days and send a copy of the notice to the North Coast Water Board.

16) Form of Notice: At a minimum, the Enrollee or non-Enrollee owner shall notify drinking water well users of the pesticide exceedance by providing them: (1) location of the drinking water well in which the exceedance occurred, (2) CDPR's Pesticide Information and Use Fact Sheet[16] and CDPR's Drinking Water Standards Fact Sheet[17] and (3) a copy of a Drinking Water Notification Template approved by the Executive Officer. The template shall be signed by the Enrollee or non-Enrollee owner certifying notice has been provided to the users. A copy of the signed template shall be sent to the North Coast Water Board and retained by the Enrollee or non-Enrollee owner.

III. Water Quality Monitoring Requirements for Coalitions

A. Water Quality Monitoring Workplan

1) The Coalition shall submit a scope of work by followed by a Workplan by the dates indicated in Table B.4 to the North Coast Water Board Executive Officer on behalf of their Enrollees for the following purposes: (1) implementing a surface water quality monitoring program in accordance with Section III.B of this MRP; (2) implementing a groundwater monitoring program in accordance with Section III.C of this MRP; and (3) providing an adaptive management approach to monitoring informed by collected data.

2) The scope of work shall describe the intent, goals, objectives, and rationale for the proposed monitoring by the Coalition. The Workplan shall present proposed monitoring sites, work tasks, milestones, and method(s) used to evaluate data trends.

3) The scope of work shall be submitted to the North Coast Water Board Executive Officer for approval by the dates indicated in Table B.4. The North Coast Water Board shall review and provide a response to the scope of work or inform the Coalition in writing of an alternative review schedule within 90 calendar days of submittal. The Workplan shall be submitted for approval by the North Coast Water Board Executive Officer by the date indicated in Table B.4. The Coalition shall implement the approved Workplan per the schedule of implementation as indicated in Table B.4.

4) The Workplan shall describe a sampling plan and frequency to comply with all requirements outlined in Section III.B (Surface Water Quality Monitoring

Requirements) and Section III.C (Groundwater Trend Monitoring Requirements) of this MRP.

5) The Workplan shall include a map and description of all required surface water monitoring points. The map(s) may be an aerial photograph(s), topographic map, LiDAR-derived shaded relief map, Google Earth image, or equivalent that depicts features at 1-inch = 50 feet or larger scale and that clearly delineates all monitoring points required in this MRP. The map may also be transmitted digitally as a set of geographic information system (GIS) files such as points, lines, polygons, and rasters in commonly accessible formats such as shapefiles and GeoTIFFs.

6) The Workplan shall consider the following criteria for identifying Groundwater Trend Monitoring wells in areas that may be at higher risk of nitrate impacts to groundwater quality from commercial vineyards: (1) Vineyard land use density; (2) Nitrogen application/removal rates (see Section VI.B); (3) Soil type and saturated hydraulic conductivity of soil; (4) Existing water quality data; (5) Depth to groundwater; (6) Absence of nearby domestic/commercial wastewater disposal and/or biosolids application to avoid effects of other nitrate sources; and (7) proximity to Drinking Water Supply Wells (public and private).

7) The Workplan shall develop a method for ranking criteria and defining sensitive areas, use GIS-Based Spatial Analysis to develop a heat map[18] with the aggregated risk from each of the ranked criteria, and to prioritize higher risk areas for regional trend monitoring.

8) The Workplan shall include methodology(s) to: (1) evaluate trends in groundwater monitoring data, and (2) determine trends in Tributary Streambed monitoring data.

9) The Workplan shall include a Quality Assurance Project Plan (QAPP) that outlines procedures used to ensure the data collected and analyzed meet requirements of this MRP. The QAPP shall be consistent with guidance provided by the State Water Resources Control Board (State Water Board) regarding Quality Assurance/Quality Control[19].

10) The Coalition may choose to propose a crop removal coefficient (C_N) in the Workplan. Total Nitrogen Removed is determined by multiplying an Enrollee's crop yield by this coefficient (C_N) which represents the amount of nitrogen in the harvested crop. The Coalition may propose a C_N coefficient determined through nitrogen removed testing, literature review or recent research for converting crop yield to nitrogen removed. If no crop removal coefficient is proposed, the Regional Board will determine the coefficient.

11) Within five years of approval of the Workplan and every five years thereafter, a Water Quality Trend Monitoring Report (Trend Monitoring Report) that presents and analyzes all water quality monitoring results in the previous five years shall be submitted for review and approval by the Executive Officer. The scope and

contents of the monitoring report are covered in Section V.C of this MRP.

B. Surface Water Quality Monitoring Requirements

1) Surface water quality in this MRP is addressed through: (1) measuring streambed conditions (fine sediment and surface roughness) following implementation of the Order requirements as a method of tracking progress towards sediment conditions which are supportive of beneficial uses; and (2) monitoring surface waters in catchments with a high density of vineyards for pesticides used on winegrapes.

2) The Coalition is encouraged to coordinate with the Russian River Regional Monitoring Program (R3MP)[20]. The North Coast Water Board Executive Officer may revise this MRP for Enrollees in a Coalition to reduce or suspend certain representative monitoring requirements (e.g. Tributary Streambed Monitoring) where participation in the R3MP provides reasonably equivalent monitoring information. The North Coast Water Board will be an active member of the R3MP and represent its own monitoring resources available through the State's Surface Water Ambient Monitoring Program (SWAMP).

Tributary Streambed Monitoring

3) Tributary Streambed Monitoring measures certain streambed conditions (e.g., fine sediment and surface roughness). The purpose is to evaluate the status and trend in streambed conditions over an extended period following implementation of the Order. Results will be used to track and evaluate progress towards sediment conditions which are supportive of beneficial uses. Target conditions are decreasing trends in fine sediment and increasing trends of surface roughness.

4) Streambed composition shall be monitored to evaluate temporal changes in particle size distribution and roughness of exposed streambed surface deposits in Russian and Navarro River tributary channel reaches which are within steelhead and/or coho salmon distribution ranges.

5) The Coalition shall monitor ten channel reaches in the Russian River watershed and two in the Navarro River watershed. Selection criteria for target reaches shall include the following: (1) access to a minimum of 1,000 linear feet of channel; (2) located within a National Hydrologic Dataset (NHD) catchment with a vineyard land area density in the highest quartile for the watershed; (3) designated as within winter steelhead and/or coho distribution ranges; and (4) has in-stream conditions which adversely impact beneficial uses.

6) In the first five years of Workplan implementation, Streambed Monitoring shall occur on Year 1 and on Year 4 for comparison. Monitoring shall occur every five years thereafter and results shall be compared to the original year one results.

7) Monitoring plan design and data collection methods shall provide sufficient data to

evaluate temporal changes in exposed streambed substrate composition. Acceptable sampling protocols include the following: (1) Wolman Pebble Count; (2) structure-from-motion close range photogrammetry[21] and the Buscombe Digital Grain Size method[22] (3) United States Environmental Protection Agency (USEPA) Environmental Monitoring and Assessment Program; (4) Surface Water Ambient Monitoring Third-Party (SWAMP)-Index to Measure the Quality of Physical Habitat in California Wadeable Streams; or (5) a protocol approved by the Executive Officer.

8) The Coalition shall submit Tributary Streambed Monitoring results every five years in the Water Quality Trend Monitoring Report as described in Section V.C of this MRP.

Representative Pesticide Monitoring

9) Every five years, the Coalition shall monitor representative surface water sites for the pesticides listed in Table B.5 that have been applied to winegrapes in Sonoma and Mendocino Counties in the past five years according to the last available CDPR Pesticide Use Reports. The Executive Officer may revise required pesticides for monitoring as trends in use and detections shift.

10) The Coalition shall propose in the Workplan a representative network of surface water monitoring sites that meet the following requirements:

    a) No less than one surface water monitoring site per HUC-12 watershed that are in the top quartile of vineyard density.

    b) Site locations shall be chosen in places that are representative of commercial vineyard land use within the HUC-12 watershed, and to avoid signal from uses not regulated under this Order (i.e., urban areas or other agriculture).

11) Surface water quality sampling for pesticides shall be conducted three times in the required monitoring year. The first sampling event shall take place within 48 hours of the first Qualifying Storm Event (QSE) after November 1st. The second sampling event shall take place within 48 hours of the first QSE following January 1st and the third sampling event shall take place within 48 hours of the first QSE following March 1st. If a sampling event is missed for any reason, the Coalition shall sample following the next QSE and include rationale in the results for why the sampling event was missed.

12) Samples shall be taken within the flow area of the water. Sampling should be avoided from ponded, sluggish, or stagnant water.

13) Samples shall be collected, maintained, and shipped in accordance with the current version of the SWAMP Quality Assurance Third-Party Plan or in

accordance with the Sampling Collection and Handling Instructions in Attachment D: Methodologies and Procedures.

14) The appropriate USEPA analytical method shall be utilized to analyze all applicable analytes consistent with the Method Detection Limit.

15) The Coalition shall include pesticide monitoring results in the Annual Water Quality Monitoring Report and conduct trend analysis of each five-year period of pesticide monitoring in the Trend Monitoring Report.

Table B.5: Pesticide Monitoring Parameters and Trigger Limits

Active Ingredient	**Trigger Limit (µg / L)**	**Source[23]**
glyphosate potassium salt	700	DDW Primary MCL; USEPA Primary MCL.
pendimethalin	0.7	USEPA Aquatic Life Benchmark
fluopyram	135	USEPA Aquatic Life Benchmark
boscalid	116	USEPA Aquatic Life Benchmark
azoxystrobin	20	USEPA Aquatic Life Benchmark
trifloxystrobin	2.76	USEPA Aquatic Life Benchmark
imidacloprid	0.01	USEPA Aquatic Life Benchmark
myclobutanil	220	USEPA Aquatic Life Benchmark
tebuconazole	11	USEPA Aquatic Life Benchmark
oryzalin	13	USEPA Aquatic Life Benchmark
oxyfluorfen	0.33	USEPA Aquatic Life Benchmark
flumioxazin	0.022	USEPA Aquatic Life Benchmark
pyraclostrobin	1.18	USEPA Aquatic Life Benchmark
glufosinate-ammonium	3	USEPA IRIS Reference Dose (RfD) as a drinking water level.
cyprodinil	8.2	USEPA Aquatic Life Benchmark

Active Ingredient	**Trigger Limit (µg / L)**	**Source[23]**
quinoxyfen	13	USEPA Aquatic Life Benchmark
difenoconazole	0.86	USEPA Aquatic Life Benchmark
spirotetramat	100	USEPA Aquatic Life Benchmark
bifenazate	150	USEPA Aquatic Life Benchmark
acetamiprid	2.1	USEPA Aquatic Life Benchmark
thiamethoxam	0.74	USEPA Aquatic Life Benchmark

16) If a pesticide is detected above the MDL, the Coalition will annually monitor for that pesticide in that location until there is no detection above the MDL in any sampling event for two consecutive years, after which point monitoring may occur every five years. The Coalition shall notify the North Coast Water Board of any pesticide reported above its MDL in the Annual Water Quality Report.

17) If a pesticide is detected in any sampling event for four consecutive years in any monitoring location, the Coalition shall analyze monitoring results for that pesticide in that monitoring location for trends in the Trend Monitoring Report. If there is no statistical increase in concentration of that monitored pesticide, the Coalition may resume sampling every five years. If there is a statistical increase, the Coalition shall notify all Enrollees in the HUC-12 watershed in which the pesticide was detected and resume annual sampling.

18) Following a five-year increasing trend in concentration of a pesticide all Enrollees shall comply with the following requirements until there the pesticide is reported below the MDL in every sampling event for two consecutive years, or the next Trend Monitoring Report indicates no statistical increase of the concentration of that pesticide:

    a) Enrollees shall indicate in their Farm Evaluation if they have applied the detected pesticide on any of their enrolled parcels in any of the years in which the pesticide was detected.

    b) Enrollees who had applied the detected pesticide in a detection year shall attend an annual outreach and education event focused on practice to prevent discharge of that pesticide to surface water. This event may also serve as the Enrollee's annual outreach and education event as required by the Order so long as the above requirements are satisfied.

19) If a pesticide is reported above the Trigger Limit, all Enrollees within the HUC-12

who have applied that pesticide in which the exceedance occurred shall develop a Water Quality Management Plan in accordance with Section II.E of this Order.

C. Groundwater Trend Monitoring Requirements

1) The objectives of Groundwater Trend Monitoring are (1) to determine current water quality conditions of groundwater relevant to irrigated agriculture, and (2) to develop long-term groundwater quality information that can be used to evaluate the regional effects of vineyard operations and its practices. This section provides the objectives and minimum sampling and reporting requirements for Groundwater Trend Monitoring.

2) All wells shall be sampled annually, at a minimum, at the same time of the year and analyzed at least for the indicator parameters identified in Table B.6 below.

3) The Water Quality Monitoring workplan shall propose monitoring wells of sufficient number, location, and screening depth to provide coverage in the Order's geographic area so that current water quality conditions of groundwater and composite regional effects of vineyard operations can be assessed according to the trend monitoring objectives[24]. The Coalition may propose wells monitored under existing monitoring programs (e.g., SGMA) where existing monitoring wells meet the goals and requirements of Groundwater Trend Monitoring and collected data align with the parameters and frequency in Table B.6.

4) Details for wells proposed for groundwater monitoring shall include:

    a) GPS coordinates.

    b) Physical address of the property on which the well is situated (if available).

    c) California state well number (if known).

    d) Total well depth.

    e) Top and bottom depths of well casing perforations.

    f) Copy of the water well drillers log (if available).

    g) Depth of standing water (static water level), if available (this may be obtained after implementing the Coalition).

    h) Well seal information (type of material, length of seal).

5) Complete well details may not always be available for Groundwater Trend Monitoring wells. In these cases, well details must be provided to the maximum extent possible, and it must be reasonable to conclude that the well's characteristics are such that monitoring results from the well are appropriate for

use in meeting the objectives of Groundwater Trend Monitoring. Wells used for Groundwater Trend Monitoring that do not have complete well details should be flagged so that they can be distinguished within the well network. Inclusion of any well in the well network is subject to Executive Officer approval.

Table B.6: Regional Groundwater Trend Monitoring and Minimum Frequency

Trend Monitoring Parameters	Units	Analysis Type	Frequency
pH	pH units	Field	Annually
Conductivity (at 25º C)	µmhos/cm	Field	Annually
Temperature	ºC	Field	Annually
Nitrate as Nitrogen	mg/L	Laboratory	Annually
Total Dissolved Solids (TDS)	mg/L	Laboratory	Annually

IV. Reporting Requirements for Enrollees

1) Enrollees shall provide the following reports to the Coalition in accordance with the master schedule in Table B.2. The initial Farm Evaluation and Irrigation and Nutrient Management Plan shall be submitted by a date that the Coalition determines for inclusion in the Annual Compliance Report, which is due **July 1, 2030**, and by July 1st annually thereafter. The Farm Evaluation and INMP report on practices and nitrogen application for the previous crop year.

A. Farm Evaluation

1) The Farm Evaluation shall indicate the management practices already in place and prescribe additional management practices or modifications to existing management practices that have been or will be implemented and maintained to comply with all conditions of this Order.

2) Enrollees shall use a Farm Evaluation Template provided by the Regional Board and available on its website or an alternate template approved by the North Coast Water Board's Executive Officer. At a minimum, the Farm Evaluation will include the following:

   a) Owner/Operator Identification: The name, business address, mailing address, email address, phone number of the owner and operator (if different from owner).

   b) Commercial Vineyard Identification: Location(s) of enrolled vineyard parcel(s), including: (1) the address, (2) the Assessor Parcel Numbers

(APNs) and the county in which each parcel is located, (3) the Township, Range and Section (TRS) of each enrolled APN; and (4) the total acreage under cultivation for each APN.

c) Vineyard Map: A vineyard map shall include all enrolled parcels and may be an aerial photograph, topographic map, LiDAR-derived shaded relief map, Google Earth image, or equivalent that depicts features at 1-inch = 50 feet or larger scale. The vineyard base map(s) shall include a north arrow and label the following appurtenant features on all enrolled parcels: (1) Streamflow diversion structures; (3) Agricultural Drainage Structures; (4) Farm buildings[25] and equipment yards; (5) Appurtenant Agricultural Roads; and (6) photo-point locations (if applicable).

d) Sediment and Erosion Control Option and Implementation Standard: The Enrollee shall indicate which Sediment and Erosion Control Compliance Option and Implementation Standard was chosen. If changing Compliance Options for the next growing season, the Enrollee must indicate that change.

e) Management Practices: A list of management practices implemented to prevent erosion and control the discharges of sediment, nutrients, and pesticides from the Farm Area, Appurtenant Agricultural Roads (including All-Season and Seasonal Roads (e.g., vineyard avenues)) and Streamside Areas.

f) Irrigation and Nutrient Management: (1) A list of management practices implemented to control discharges of nutrients to surface waters and to minimize leaching of nitrogen past the root zone, (2) Primary and secondary irrigation methods for each APN and (3) Irrigation management practices to minimize surface run-off or groundwater leaching.

g) Well Identification: The number of (1) irrigation wells, (2) Drinking Water Supply Wells, and (3) abandoned or inactive wells associated with each enrolled APN. Each well shall be given a unique Well ID.

h) Certification of Maintenance: The Enrollee shall certify on their Farm Evaluation that all management practices are designed, installed, and maintained, and promptly repaired in accordance with Section II.C of the Order.

i) Agricultural Drainage Structure Sampling Locations (if applicable): Labeled Agricultural Drainage Structure sampling locations for every Agricultural Drainage Structure at its furthest downstream location on the Farm Area for which the discharge is in hydrologic connection[26] to surface waters. Agricultural Drainage Structure sampling locations are utilized for stormwater monitoring as specified in Section III of this MRP.

j) Photo-Point Monitoring Locations (if applicable): Labeled photo-points in accordance with Section II.B of this MRP.

B. Irrigation and Nitrogen Management Plan

1) The Irrigation and Nitrogen Management Plan (INMP) budgets nitrogen application and removal (AR) rates on the commercial vineyard. The Coalition will use this data to calculate and transmit information in accordance with Table B.7 and identify outliers in accordance with Section V.D of this MRP.

2) Enrollees shall prepare and submit an INMP for each parcel for the prior crop year. Where this Order requires reporting by parcel, Enrollees may aggregate data for a portion of a parcel or for multiple parcels provided that the reported area has (1) the same fertilizer inputs, (2) the same irrigation management, and (3) the same management practices. In no case should a reported area exceed a total size of 640 acres. These “Nitrogen Management Units’ shall be defined, labeled and consistent in the reporting.

3) Enrollees identified as outliers as described in Section V.D, shall get the INMP for the following year certified by an irrigation and nitrogen management planning specialist or self-certify their INMP. Enrollees shall indicate on the INMP following outlier notification that they were notified as outliers for reported AR data and reflect additional or improved management practices implemented to address potential over-application of nitrogen.

4) Enrollees must use the INMP Template approved by the North Coast Water Board’s Executive Officer. At a minimum, the INMP will collect the following information:

   a) Crop Year.

   b) Owner/Manager name.

   c) Assessor Parcel Number (APN).

   d) Acreage for each parcel identified.

   e) Crop age (permanent crops).

   f) Irrigation method.

   g) Total Acreage.

   h) Crop Yield (in specified units)

   i) Documented outreach and education received or attended during previous year in accordance with Section III.C.4 of this Order.

j) Nitrogen Applied (lbs./acre) from the following sources:

i) All applied water (e.g., irrigation, frost protection, recycled water, winery process wastewater, etc.)

ii) Synthetic Fertilizers, and/or

iii) Organic Amendments (e.g., grape pomace, manure, compost, etc.)

V. Reporting Requirements for Coalitions on Behalf of their Enrollees

A. Annual Compliance Report

1) By **July 1, 2030**, and by July 1st annually thereafter, the Coalition shall submit to the North Coast Water Board an Annual Compliance report consisting of:

a) The Participant List,

b) Management practice implementation data from the most recently submitted Farm Evaluations,

c) Nitrogen reporting from the most recently submitted INMPs,

d) Outreach Attendance, and

e) CEQA Mitigation Monitoring.

2) This data shall be submitted in Excel Workbook format as described below. A report shall accompany the submitted data which summarizes submitted data and notes any significant changes in management practices or nitrogen application information since the previous year submittal. The summary of management practice data must include a quality assessment of the collected information by township (e.g., missing data, potentially incorrect/inaccurate reporting), and a description of corrective actions to be taken regarding any deficiencies in the quality of data submitted, if such deficiencies were identified.

Annual Participant List Submittal

3) The list of Enrollees enrolled through the Coalition shall be reported to the North Coast Water Board in an Excel Workbook format and contain the following information in three separate Tables.

4) Table 1: Participating Enrollees:

a) Owner/Operator Name

b) Owner/Operator Address

c) Total number of enrolled acres

5) Table 2: Non-Participating Enrollees. This table identifies Enrollees that are no longer participating with the Coalition since the last Annual Compliance Report submittal. This table must include the following information:

a) Owner/Operator Name

b) Owner/Operator Address

c) Total number of acres no longer enrolled participating under Coalition enrollment,

d) Reason for non-participation in Coalition, including but not limited to:

i) No longer farming/sold farm,

ii) Enrolling in Order individually, or

iii) Failure to:

1. Implement water quality management practices,

2. Submit a complete Farm Evaluation,

3. Submit a complete annual INMP Summary Report,

4. Provide confirmation of participation in at least one outreach activity,

5. Pay the required fees, or

6. Respond to an information request associated with any applicable provisions of this Order.

iv) Other

6) Table 3: Flagged Enrollees. This table identifies Enrollees who have either been identified as Nitrogen AR outliers in accordance with Section V.D or are doing Adaptive Management due to any of the conditions outlined in this MRP. This table must include the following information:

a) Owner/Operator Name

b) For each owner/operator identified, note reason(s) for inclusion on this list and provide the following information, if applicable:

i) Identified as a Nitrogen AR Outlier in accordance with Section V.D of this MRP.

ii) Enrollee is implementing Adaptive Management. For each Enrollee implementing Adaptive Management, the Coalition shall indicate the year of Adaptive Management implementation, the parameter for which Adaptive Management is occurring, and whether a Water Quality Management Plan is due next reporting cycle.

Annual Submittal of Management Practice (Farm Evaluation) Data

7) The following data from the prior year's Farm Evaluations shall be reported to the North Coast Water Board for each APN in an Excel Workbook format:

a) Anonymous Enrollee ID.

b) Township and Range.

c) Sediment and Erosion Control Compliance Option and Implementation Standard.

d) Irrigation method(s) and practices.

e) Pest management practices.

f) Sediment and erosion management practices.

g) Nitrogen management practices.

h) Number of wells (irrigation, drinking water, and inactive or abandoned).

Annual Submittal of Irrigation and Nitrogen Management Summary Data

8) The Coalition shall submit data in two tables as described below from the prior year's Irrigation and Nitrogen Management Plans (INMP) and additional calculations as described below in two tables in Excel workbook format.

9) The Coalition shall calculate the values as described in Table B.7 and convert them to per acre values for inclusion into two tables as described below reported to the North Coast Water Board as part of the Annual Management Practices Report.

10) Table 1: Individual Parcel-Level AR Data by Anonymous Enrollee ID and APN: One entry is made for each parcel reported:

a) Anonymous Enrollee ID: Each Anonymous Enrollee ID may be associated with more than one APN ID.

b) Anonymous APN ID.

c) Associated groundwater basin or sub-basin.

b) Nitrogen applied via fertilizers (lbs/acre).

c) Nitrogen applied via organics and compost (lbs/acre).

d) Nitrogen applied via water (lbs/acre).

e) Total Nitrogen applied (lbs/acre) [sum of nitrogen from fertilizer, organics/compost, and all applied water].

f) Nitrogen removed per acre (lbs/acre).

g) A/R ratio as defined in calculations in Table B.7.

h) A-R difference (lbs/acre) as defined in calculations in Table B.7.

i) 3-year A/R ratio if available as defined in calculations in Table B.7.

11) Table 2: Township-Level Aggregated AR Data Table:

a) Township and Range.

b) Total acreage: sum for all the acreage within the township (acres).

c) Total nitrogen applied via fertilizer: sum for all acreage in township (total lbs).

d) Total nitrogen applied via organics and compost: sum for all acreage in township (total lbs). Total nitrogen applied via irrigation water, recycled water, and winery process wastewater: sum for all acreage in township (total lbs.).

e) Total nitrogen applied (total lbs.) [sum of nitrogen from fertilizer, organics/compost, and all applied water)].

f) Total nitrogen removed for all acreage in acreage (total lbs.).

g) A/R ratio for township as defined in calculations in Table B.7.

h) A-R difference for township (total lbs.) as defined in calculations in Table B.7.

Nitrogen Reporting Calculations

12) The Coalition shall review each Enrollee's INMP Summary Reports and independently calculate and report both the A/R ratio and the A-R difference for the current reporting cycle (A/R1 year and A-R1 year). Beginning the third year of reporting, for those locations with data available for three years, the Coalition shall calculate and report a three-year running total for both the A/R ratio and the A-R

difference (A/R3 year and A-R3 year) in accordance with the equations in Table B.7 below.

13) The Coalition shall submit these calculations in accordance with the Nitrogen Summary Report requirements in Section V.A above.

Table B.7: Nitrogen Reporting Equations

Description	Equation
The A/R ratio is the ratio of total Nitrogen Applied[27] to Nitrogen Removed[28] (including all harvested materials and nitrogen annually sequestered in woody material)	$$A/R\ Ratio = \frac{Nitrogen\ Applied\ (lbs./acre)}{Nitrogen\ Removed\ (lbs./acre}$$
For each parcel for which three consecutive years of A/R ratio is available, the multi-year A/R ratio shall be reported as the ratio of total nitrogen applied to total nitrogen removed (calculated below) for the three prior consecutive years	$$A/R_{3\ year}\ Ratio = \frac{A_n + A_{n-1} + A_{n-2}}{R_n + R_{n-1} + R_{n-2}}$$ Where n = current reporting cycle A = Nitrogen Applied R = Nitrogen Removed
The A-R difference is the difference of total Nitrogen Applied and the total Nitrogen Removed	A-R Difference= Nitrogen Applied (lbs./acre) – Nitrogen Removed (lbs./acre)
The multi-year A-R difference shall be reported as the numerical difference between total nitrogen applied and total nitrogen removed for the three prior consecutive years.	$$A\text{-}R_{3\ year}\ Difference = [A_n + A_{n-1} + A_{n-2}] – [R_n + R_{n-1} + R_{n-2}]$$ Where n = current reporting cycle A = Nitrogen Applied R = Nitrogen Removed
Total Nitrogen Removed is determined by multiplying an Enrollee's crop yield by a crop-specific nitrogen coefficient (C_N) provided by the Regional Board or Coalition, which represents the amount of nitrogen in the harvested crop. The Coalition may propose, through nitrogen removed testing and research, the most appropriate C_N coefficient for converting crop yield to nitrogen removed. Until the C_N coefficients have been established, the Enrollee will only report the crop yield in the INMP. Nitrogen Removed includes nitrogen removal via harvest and nitrogen sequestered in permanent wood of perennial crops	Nitrogen Removed (lbs./acre) = Crop Yield (tons/acre) x C_N (lbs./tons)

Outreach Event Attendance

14) The Coalition shall submit outreach event attendance information on behalf of its Enrollees. At a minimum, the outreach event records shall include:

    a) Anonymous Enrollee ID,

    b) Date of annual outreach event attended,

    c) Type of outreach event (e.g., in-person meeting, online video, printed materials), and

    d) Brief description of topics covered.

CEQA Mitigation Monitoring

15) As part of the Annual Compliance Report, the Coalition shall report on the CEQA mitigation measures reported by its enrolled Enrollees to meet the provisions of the Order and any mitigation measures the Coalition has implemented on behalf of Enrollees. The Mitigation Monitoring Report shall include information on the implementation of CEQA mitigation measures (mitigation measures are described in Attachment E of the Order), including the measure implemented, identified potential impact the measure addressed, location of the mitigation measure (township, range, section), and any steps taken to monitor the ongoing success of the measure.

B. Annual Water Quality Monitoring Report (Annual Monitoring Report)

1) The Coalition shall submit an Annual Monitoring Report that includes results of Agricultural Drainage Structure Monitoring and groundwater monitoring over the previous year as described in Sections II and III of this MRP. The initial submittal for Agricultural Drainage Structure Monitoring data will be by **July 1, 2030** and for groundwater trend monitoring data by **July 1st**, one year following approval of the Water Quality Monitoring Workplan and by **July 1st** annually thereafter.

2) The annual reports shall include a map of the HUC-12 units in which ag drainage structure monitoring occurred in the previous year, sampled wells, tabulation of the analytical data, and time of concentration (Tc) charts. Groundwater quality monitoring data are to be submitted electronically to the State Water Board's GeoTracker Database.

3) The Coalition shall submit groundwater field measurements and laboratory analysis results as they are available in an electronic format. The annual water quality monitoring data results shall include the following for the required reporting period:

    a) One Excel workbook containing all surface water data and one Excel workbook containing all groundwater trend monitoring data. Agricultural

Drainage Structure Monitoring data shall be reported by anonymous location ID at the HUC-12 level. For each Agricultural Drainage Structure monitoring result in which the Enrollee either discounts the Offsite Stormwater run-on value or has submitted and received approval of a determination by the Executive Officer, the Coalition shall report the general land-use(s) immediately upslope that is the source of the run-on.

b) Electronic copies of all field sheets.

c) Electronic copies of photos obtained from all surface water monitoring sites, clearly labeled with anonymous location code, HUC-12, and date.

d) Electronic copies of all applicable laboratory analytical reports shall be submitted once per year with the Annual Monitoring Report.

e) Calibration logs from all turbidimeters used in sampling.

f) For chemistry data, analytical reports must include, at a minimum, the following:

g) A lab narrative describing quality control failures.

h) Analytical problems and anomalous occurrence.

i) Chain of custody and sample receipt documentation.

j) All sample results for contract and subcontract laboratories with units, Reporting Limits, and Method Detection Limits.

k) Sample preparation, extraction, and analysis dates.

l) Results for all quality control samples including all field and laboratory blanks, lab control spikes, matrix spikes, field and laboratory duplicates, and surrogate recoveries.

4) If any data is missing from the annual report, the submittal must include a description of what data is missing and when it will be submitted to the North Coast Water Board.

C. Water Quality Trend Monitoring Report (Trend Monitoring Report)

1) On **July 1st**, five years following approval of the Workplan and by **July 1st** every fifth year thereafter, the Coalition shall submit a Water Quality Trend Monitoring Report (Trend Monitoring Report) that reports and analyzes all water quality monitoring data as described in Section II and Section III of this MRP over the previous five years.

2) The Trend Monitoring Report shall include the following components:

a) A signed transmittal letter shall accompany each report. The transmittal letter shall be submitted and signed in accordance with the requirements of Section II.H: Provisions of the Order.

b) Title page.

c) Table of contents.

d) Executive summary.

e) Description of the Coalition's covered geographical area.

f) Monitoring objectives and design.

g) Sampling site/monitoring well descriptions and rainfall records for the time period covered under the Trend Monitoring Report.

h) Location map(s) of sampling sites/monitoring wells and land uses:

i) Location map(s) showing the sampling sites/monitoring wells and land uses within the geographic area of the Coalition's members must be included in the Trend Monitoring Report.

ii) An accompanying GIS shapefile or geodatabase of monitoring site and monitoring well information must include site code and name (for surface water only) and Global Positioning System (GPS) coordinates (for streambed monitoring and wells used for monitoring).

iii) GPS coordinates must be provided as latitude and longitude in the decimal degree coordinate system (at a minimum of five decimal places).

iv) Agricultural Drainage Structure sampling sites do not need to be identified and are reported by anonymous location ID and aggregated at the HUC-12 level.

v) The map(s) must contain a level of detail that ensures they are informative and useful. The datum must be clearly identified on the map. The source and date of all data layers must be identified on the map(s). All data layers/shapefiles/geodatabases included in the map shall be submitted with the Annual Monitoring Report.

i) Results of all analyses arranged in tabular form so that the required information is readily discernible. In reporting monitoring data, the Coalition shall arrange the data in tabular form so that the required information is readily discernible. The data shall be summarized in such a manner to

clearly illustrate compliance with the data collection requirements of the MRP.

j) The report shall include a discussion of the Coalition's compliance with the data collection requirements of the MRP. If a required component was not met, an explanation for the missing data must be included. Results must also be compared to water quality objectives and trigger limits.

k) Sampling and analytical methods used.

l) Summary of Quality Assurance Evaluation results (as identified in the most recent version of the Third-Party's approved QAPP):

   i) A summary of precision and accuracy of results (both laboratory and field) is required in the report. Acceptance criteria for all measurements of precision and accuracy must be identified. The Coalition must review all quality assurance/quality control (QA/QC) results to verify that protocols were followed and identify any results that did not meet acceptance criteria.

   ii) A summary table or narrative description of all QA/QC-verified results that did not meet water quality objectives must be included. Additionally, the report must include a discussion of how the failed QA/QC results affect the validity of the reported data and the corrective actions to be implemented.

   iii) The Coalition shall calculate report completeness which includes the percentage of all quality control results that meet acceptance criteria, as well as a determination of project completeness.

   iv) The Coalition may ask the laboratory to provide assistance with evaluation of their QA/QC data, provided that the Coalition prepares the summary table or narrative description of the results for the AMR.

m) Summary of exceedances of water quality objectives or trigger limits occurring during the reporting period. A summary of the exceedances of water quality objectives or triggers that have occurred during the monitoring period is required in the Trend Monitoring Report.

n) Actions taken to address water quality exceedances that have occurred, including but not limited to, revised or additional management practices implemented.

o) Evaluation of monitoring data to identify spatial trends and patterns:

   i) The Coalition must evaluate its monitoring data in the Trend Monitoring Report to identify potential trends and patterns in surface water and

groundwater quality that may be associated with waste discharge from commercial vineyards. As part of this evaluation, the Coalition must analyze all readily available monitoring data that meet quality assurance requirements to determine deficiencies in monitoring for discharges from commercial vineyards and whether additional sampling locations are needed.

p) If deficiencies are identified, the Coalition must propose a schedule for additional monitoring or source studies. Upon notification from the Executive Officer, the Coalition must monitor any parameter in a watershed that lacks sufficient monitoring data (i.e., a data gap should be filled to assess the effects of discharges from commercial vineyards on water quality). Wherever possible, the Coalition should utilize tables or graphs that illustrate and summarize the data evaluation.

q) Conclusions and recommendations.

D. Statistical Outlier Methodology

1) By **July 1st**, seven years following initial INMP reporting, the Coalition may propose a methodology for determining statistical outliers in nitrogen application and removal rates by township. The purpose of AR outlier determination and notification is to identify Enrollees who may be contributing to nitrate leaching to groundwater. Enrollees identified as AR outliers will need their INMPs certified by an irrigation and nitrogen specialist in accordance with Section II.F of this Order.

2) In the first reporting cycle following approval of the Groundwater Protection Plan, the Coalition shall identify the entries in Table 1 of the INMP Data submittal in Section V.A of this MRP that Coalition considers to be outliers for the AR data, and which are subject to follow up actions as described in Section II.F of the Order.

3) The Coalition shall notify the North Coast Water Board by **January 1** prior to the statistical outlier methodology submission deadline if they do plan to submit a proposal. If no proposal is submitted, the North Coast Water Board will provide the methodology for determining AR outliers.

VI. Attachment B Endnotes

[1] The Enrollee may elect to have the Coalition fulfill these monitoring requirements.

[2] A hierarchical hydrologic unit code (HUC) consisting of 2 additional digits for each level in the hydrologic unit system is used to identify any hydrologic area (see Federal Standards and Procedures for the National Watershed Boundary Dataset, 4th ed. 2013). A complete list of Hydrologic Unit codes, descriptions, names, and drainage areas can be found in the United States Geological Survey Water-Supply Paper 2294, entitled "Hydrologic Unit Maps".

[3] Calibration logs shall be kept with the instrument and submitted with the Annual Water Quality Monitoring Report as required in Section VII.D.

[4] See USEPA Method 180.1 (https://www.epa.gov/sites/default/files/2015-08/documents/method_180-1_1993.pdf).

[5] See the SWAMP Quality Assurance Plan (https://www.waterboards.ca.gov/water_issues/programs/swamp/quality_assurance.html).

[6] Temporary Sediment Control best management practices (BMPs) are short-term measures that should be considered during a period where areas are disturbed due to stormwater runoff, farming activities, or maintenance. A temporary sediment control BMP is normally used for 1—6 months, or until a more permanent BMP is put into place. Temporary sediment control BMPs are typically used in conjunction with erosion control BMPs and are designed and installed to keep as much sediment on-site as possible. Examples of temporary sediment controls could include, but are not limited to linear sediment controls, dikes and berms, check dams, sediment catchment basins, and inlet/outlet protection.

[7] Accepted sediment and erosion control management practice standards and design can be found in the NRCS-USDA National Conservation Practice Standards; USEPA's National Management Measures to Control Nonpoint Source Pollution from Agriculture; Handbook of Forest, Ranch, and Rural Roads; A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining, and Closing Wildland Roads; California's Management Measures for Polluted Runoff; Best Management Practices for VESCO Agricultural Erosion and Sediment Control; The Land Steward's Guide to Vineyard and Orchard Erosion Control; the California Code of Sustainable Winegrowing Workbook, and the California Stormwater Quality Association BMP Handbook.

[8] Accepted sediment and erosion control management practice standards and design can be found in the NRCS-USDA National Conservation Practice Standards, USEPA's National Management Measures to Control Nonpoint Source Pollution from Agriculture ; Handbook of Forest, Ranch, and Rural Roads, A Guide for Planning, Designing, Constructing, Reconstructing, Upgrading, Maintaining, and Closing Wildland Roads , California's Management Measures for Polluted Runoff ; Best Management Practices for VESCO Agricultural Erosion and Sediment Control

; The Land Steward's Guide to Vineyard and Orchard Erosion Control, the California Code of Sustainable Winegrowing Workbook , and the California Stormwater Quality Association BMP Handbook.

[9] Flows that originate from an area not located on the Enrollee's enrolled parcel and flow onto the Farm Area

[10] See the Quick Guide to Photo Point Monitoring https://efotg.sc.egov.usda.gov/references/public/NM/bio61a6_PhotoDocumentation_Protocol.pdf

[11] See the CDPR 6800(a) List. (https://calpip.cdpr.ca.gov/infodocs/gwpa/external_section6800.cfm).

[12] See ELAP Labs (https://www.waterboards.ca.gov/drinking_water/certlic/labs/).

[13] See USEPA SW-846 (https://www.epa.gov/hw-sw846).

[14] Representative well shall be within the same HUC12 in which the pesticides were applied, or within the closest drinking water well if no drinking water Wells are within the HUC12 of the applied pesticide.

[15] See CDPR HHRLs (https://www.cdpr.ca.gov/docs/emon/grndwtr/gwp_sampling.htm).

[16] See Pesticide Info Sheet (https://www.cdpr.ca.gov/docs/dept/factshts/pesticide_info_and_use_gw.pdf).

[17] See Pesticide Drinking Water Sheet (https://www.cdpr.ca.gov/docs/dept/factshts/pesticide_drinking_water_gw.pdf).

[18] Map representing data values using a range of cool to warm colors.

[19] See the State Water Board QA/QC (https://www.waterboards.ca.gov/water_issues/programs/quality_assurance/qapp.html).

[20] The R3MP was established in 2019 to provide the scientific information necessary for successful long-term management of Russian River watershed health, in the context of climate change, land use change, and population growth. These management challenges demand a coordinated watershed-scale approach to monitoring and assessment to inform water resource management in the watershed. Funded predominantly by the North Coast Water Board during program development, the R3MP is envisioned as an integral part of a scientific enterprise centered on the watershed that services the many management interests, including counties, municipalities, other public agencies, Tribes, non-governmental environmental organizations, and private interests that need a dependable source of high quality, independent, scientific information to successfully address clearly defined watershed health issues. The goal of the R3MP is to ensure that all publicly and privately funded environmental monitoring conducted in the Russian River watershed and related to the implementation of public policy and regulatory requirements is adequately standardized, coordinated, accessible, and designed to cost-effectively answer watershed management questions. The Steering Committee of the R3MP is currently co-chaired by senior staff of the North Coast Water Board and the City of Santa Rosa. The Initial Coordinated 5-year Monitoring

Plan, Version 1.1 was approved by the R3MP Steering Committee in June 2024. See the R3MP website for more information: https://sites.google.com/sfei.org/r3mp/

[21] Whitepaper on Structure from Motion (SfM) Photogrammetry: Constructing Three Dimensional Models from Photography Bureau of Reclamation Research and Development Office Science and Technology Third-Party Final Report ST-2015-3835-1.

[22] Buscombe, D., 2013, Transferable wavelet method for grain-size distribution from images of sediment surfaces and thin sections, and other natural granular patterns: Sedimentology 60. (https://onlinelibrary.wiley.com/doi/10.1111/sed.12049).

[23] Trigger limit sources were determined from the lowest of numberic water quality thresholds. These thresholds are used to assess whether beneficial uses of surface water are likely to be impaired or threatened. USEPA Aquatic Life Benchmarks are based on toxicity values from scientific studies that EPA reviewed and used to estimate risk to freshwater organisms from exposure to pesticides and their degradates in their most recent publicly available ecological risk assessments and preliminary Problem Formulations written in support of pesticide registration or registration review. The USEPA Aquatic Life Benchmarks used were for chronic freshwater vertebrates and invertebrates benchmarks and nonvascular and vascular plants. For more information on Water Quality Goals, visit the State Water Board's website at: https://www.waterboards.ca.gov/water_issues/programs/water_quality_goals/

[24] The Coalition may reference Department of Water Resources guidance document Section D (Degraded Water Quality) to determine sufficient monitoring well network for groundwater quality assessment (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-2-Monitoring-Networks-and-Identification-of-Data-Gaps_ay_19.pdf).

[25] Farm buildings include equipment storage sheds, farmworker housing, and processing buildings.

[26] Physical connection of water and sediment between and through a drainage network.

[27] Nitrogen Applied – Nitrogen Applied includes all nitrogen proactively added to a vineyard from any source, such as organic amendments, synthetic fertilizers, manure, and irrigation water.

[28] Nitrogen Removed – Nitrogen Removed includes all nitrogen taken from the vineyard in harvested or other materials. Other materials may include wheat straw, orchard prunings, almond hulls, etc. In the case of perennial crops, Nitrogen Removed also includes the nitrogen annually sequestered in the permanent wood.