

Northern Central Coast Cooperative Groundwater Program

Northern Central Coast Groundwater Task Force

Presented by

Grower-Shipper Association of Central California

Monterey County Farm Bureau

San Benito County Farm Bureau

Santa Clara Farm Bureau

Santa Cruz County Farm Bureau

Western Growers

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List of Acronyms

| | |
|-------|--|
| BMP | Best Management Practice |
| CDW | Clean Drinking Water |
| DPR | Department of Pesticide Regulation |
| DWR | Department of Water Resources |
| EPA | U. S. Environmental Protection Agency |
| GAMA | Groundwater Ambient Monitoring and Assessment |
| GCP | Groundwater Cooperative Program |
| GIS | Geographic Information System |
| MCL | Maximum Contaminant Level |
| MRP | Monitoring and Reporting Program |
| NCCGA | Northern Central Coast Groundwater Association |
| PUR | Pesticide Use Report |
| QAPP | Quality Assurance Project Plan |
| USDA | United States Department of Agriculture |

Introduction

The Central Coast Regional Water Quality Control Board (“Regional Board”) adopted Order No. R3-2012-0011 Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands (“Conditional Waiver”) and associated Monitoring and Reporting Program Orders (“MRPs”) on March 15, 2012. The Conditional Waiver and the MRPs specify that growers in Tiers 1, 2 and 3 may meet groundwater monitoring requirements by either monitoring groundwater individually on their agricultural operations, or by joining a groundwater cooperative monitoring program. The purpose of this document is to set forth the plan for a Northern Central California Groundwater Cooperative Program that satisfies the requirements in the Conditional Waiver and MRPs for participating growers in Monterey, Santa Cruz, Santa Clara, and San Benito Counties. The steps outlined in this work plan provide a foundation for a cost-effective Groundwater Cooperative Program (GCP) that growers can support, and that satisfies the requirements as set forth in the MRPs. One of its primary purposes is to provide the Regional Board with information that fills the gaps in the current understanding of groundwater quality throughout the region. Depending on the further development of the Conditional Waiver and its implementation, the program may also eventually provide information to the Regional Board on existing farming practices and additional farming practices that will result in improved groundwater quality over time.

Program Philosophy

Agricultural landowners and growers recognize there is a shared responsibility for maintaining acceptable water quality. They recognize that past fertilizer inputs, as well as other historical land use practices, may have contributed to groundwater quality problems, and are focused on finding solutions to address the contribution that may be coming from existing agricultural practices. Growers who choose to participate in this coalition are making a commitment to address groundwater quality in the aquifers supplying drinking water. If we collect a data sample that shows that nitrates are above the MCL identified by the Department of Public Health as safe for human consumption, and that water coming from that well is currently being consumed, the GW-CMP will make that grower/landowner aware so that they may take immediate steps to address the problem.

The GCP will be conducted in three phases; the first three of which will be completed during the term of the current Conditional Waiver.

- **Phase I** involves working with the Regional Board to identify data gaps in the available groundwater quality data. This phase is expected to last for approximately 9 – 12 months. However, it is anticipated that monitoring (Phase II) will be initiated for identified high priority locations prior to the completion of Phase I.

- **Phase II** includes the collection of data necessary to fill the gaps in the understanding of groundwater quality throughout the region. Sufficient data will be gathered or developed during Phase II to provide for a comprehensive and technically sound assessment of the groundwater quality in all of the basins in the Northern Central Coast region. Phase II will be initiated immediately after high priority locations are identified and would be completed

before the expiration of the Conditional Waiver.

- **Phase III** involves using the data obtained during Phases I and II to characterize the groundwater in the region and develop a long-term monitoring program to evaluate trends in groundwater quality over time. Phase III is expected to begin in year 4 and be completed in year 5 prior to the expiration of the Conditional Waiver. This work plan provides the detail on these three Phases of the GCP.

Long Term Objectives: Developing the outreach framework that elucidates how water quality results generated during data collection and analysis and any long-term monitoring program will be linked to the information on management practices that growers provide to the Regional Board or a third party. The GCP could use management practice information to provide feedback to growers about the effectiveness of their practices and keep them current on emerging practices that may assist in reducing the movement of nitrates to groundwater, to the extent feasible. Because this long-term objective is outside the scope of the requirements of the current Conditional Waiver, it is not addressed in this plan.

Monitoring is an important component of a GCP. However, monitoring is not the sole component of an effective program. Gathering water samples and analyzing them for constituents of concern alone results in an insufficient program that does not adequately address water quality problems. Monitoring results must be used to inform growers of potential problems and document improvements for the Regional Board. Both time and money will be wasted if required reporting information is used only for fulfilling a data submission requirement. Data submissions must be accompanied by data analysis that provides context and basis for decisions.

Groundwater differs from surface water in that much of the nitrate in the groundwater is the result of activities that took place years or decades ago. Furthermore, depending on the depth of the aquifer and the recharge rate, it may take decades for the implementation of effective management practices to result in reduced concentrations of nitrate in the groundwater.

Therefore, monitoring can be performed without any measureable improvement in water quality because,

- 1) Best Management Practices (BMPs) are not effectively reducing the movement of nitrate through the vadose zone , or
- 2) BMPs are effective at reducing the movement of nitrate through the vadose zone however due to long recharge rates, the groundwater concentrations of nitrate are still high

Our hypothesis is that due to changes in management practices in recent years and broader adoption of BMPs, groundwater quality is improving. However, because the lag time between management practice changes and water movement through the vadose zone may be considerable, those positive actions may not have equated to measureable improvement in groundwater quality.

The GCP outlined here allows both the cooperative program members and the Regional Board to distinguish between the two scenarios. This distinction is critically important during the early years of the program when improvements in groundwater quality may be difficult to measure.

This work plan focuses on the first three phases of the GCP. Long term priorities and projects will not be elaborated as they are beyond the scope of what is required under the current MRP of the Conditional Waiver. However, the cooperative program wants to inform its members and the Regional Board that a focus on management practices is likely to be conducted in some form in the future.

Groundwater Cooperative Program

Objectives

The objectives of the first three Phases of the GCP are:

- **Phase I** - Identify the gaps in groundwater quality data and develop a plan to provide the data to eliminate the gaps;
- **Phase II** - Collect data necessary to fill the data gaps; data collection is to begin at the earliest opportunity during the months specified by the MRP documents; and
- **Phase III** - Develop groundwater assessment report for areas covered by the cooperative program.

Phase I

Phase I involves evaluating available data to determine the concentration of nitrate and other constituents in aquifers within the northern Central Coast region. The goal of this phase is to identify:

- 1) Regions where shallow groundwater is known to be contaminated by nitrates,
- 2) Regions where shallow groundwater is likely to be contaminated by nitrates but for which water quality data are sparse or lacking, or
- 3) Regions where water quality is completely unknown.

The steps in Phase I include the following:

- Step 1: Identify the data gaps; this is expected to begin prior to the submission of the work plan and continue throughout 2013 and will include data acquisition and data gaps analysis;
- Step 2: Prioritize locations for monitoring
- Step 3: Identify wells that will be monitored for various constituents (not all wells are monitored for all constituents)

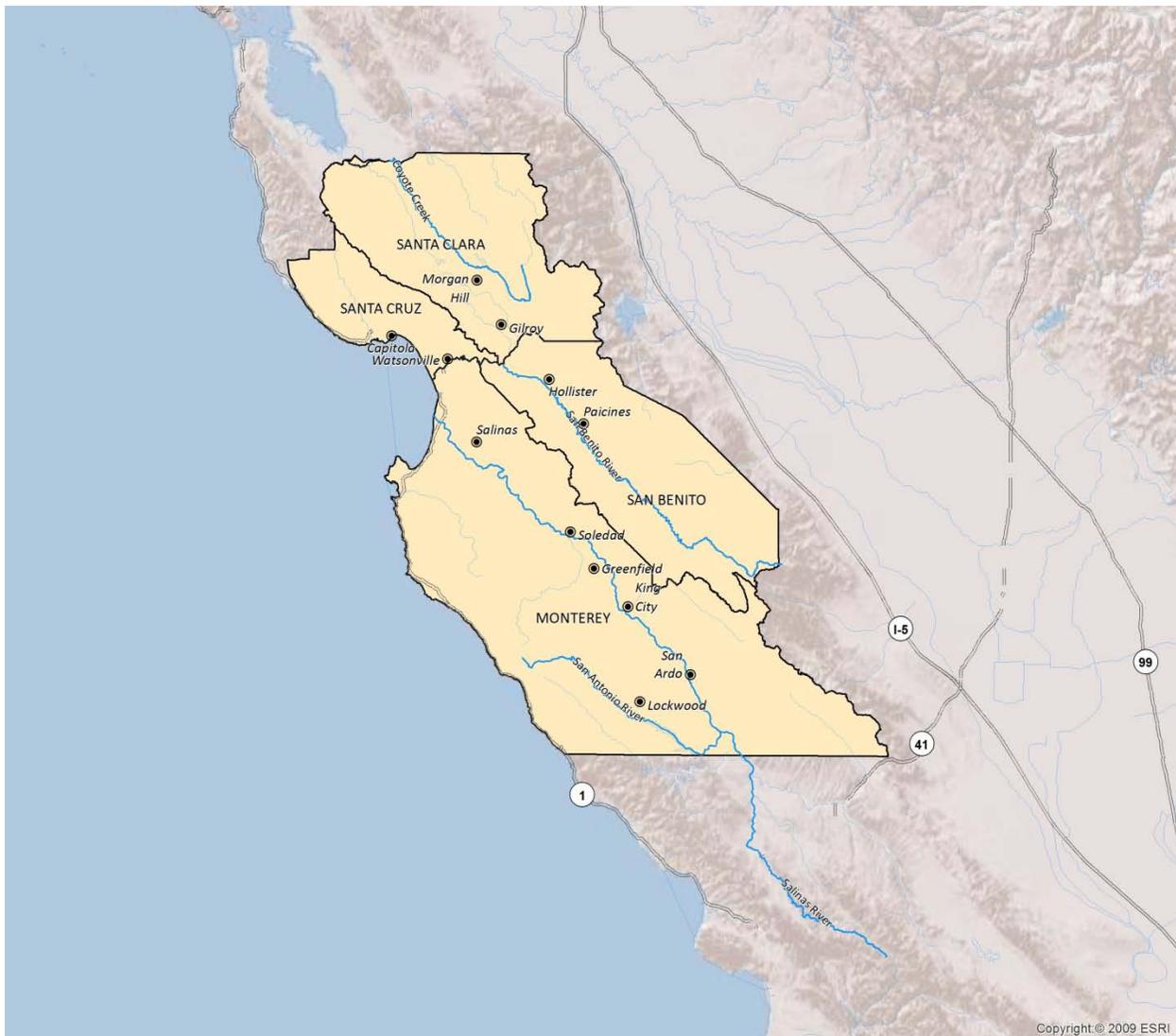
The focus of the analysis is the quality of water used as drinking water by individuals in areas influenced by production agriculture on the northern Central Coast. There may also be numerous wells used for drinking water located in areas with no substantial agricultural production; those areas and wells are not the focus of this program. The initial data gathering in Phase I will begin prior to the approval of the work plan and can continue for up to 12 months. However, to prevent delays in sampling, activities in the first three months will be focused on identifying locations where there are data gaps in aquifers supplying drinking water. Sampling of these wells (Phase II described below) will begin within 120 days

of approval of the workplan by the Executive Officer.

Description of Project Area

The GCP covers enrolled growers in the northern part of the Central Coast region including portions of Santa Cruz County, Santa Clara County, San Benito County, and Monterey County (Figure 1). Growers in these four counties are potential participants in this program. The region contains several groundwater basins. As the project proceeds, groundwater basins underlying agriculture will be characterized including the known geology and all information available on the aquifer. The GCP will not conduct any extensive geological investigations but will focus on characterizing the groundwater quality in each aquifer.

Figure 1. Geographic area of the GCP.



Available Water Quality Data

The Groundwater Task Force, the entity sponsoring this plan development, has engaged the local water agencies from Monterey, Santa Cruz, San Benito, and Santa Clara counties in discussions about availability of well data and GIS shape files. Data vary by county and the completeness of their data relative to the number of connections also varies. Monterey County Environmental Health monitors wells with 2 or more connections, Santa Cruz monitors wells with >5 connections, and Santa Clara monitors wells with >4 connections. All three counties have regulations requiring a 50' depth well seal but the regulations have been in place only since the 1980s and wells drilled prior to the 1980s may be shallower. For wells monitored by each county, there are data available on well depth although not all wells provide information on screening intervals.

All three counties indicated that there are a large number of wells that serve single dwellings or fewer than the minimum number of connections regulated by the county. It is not known how many wells are located in areas where substantial production agriculture occurs.

Initially, the data acquired will be from GeoTracker GAMA. These are primary data sources and are of high quality. Other potential sources such as the database used to develop the SBX2 1 report to the State Water Resources Control Board ("State Board") draw from these sources as well as others and may not reflect the data as originally submitted. It is not possible to verify the quality of data from secondary sources and consequently those data will not be used. If data are not available to characterize groundwater basins and aquifers, those data will be developed during this project (see below).

GIS Data

Parcel layers will be obtained from the counties, and agricultural land use is available from the US Department of Agriculture (USDA) cropland data for the counties. County parcel maps and the USDA land use maps will be compared to the parcel locations of the wells to identify the wells located in agricultural regions. Additional data may be used to identify potential well locations including county septic system information, Department of Water Resources ("DWR") land use data, DWR well log data, or Pesticide Use Report (PUR) data from the Department of Pesticide Regulation.

Water Quality

There is a lack of data about the concentration of nitrate in aquifers serving as sources of drinking water. Where possible, nitrate concentrations will be associated with depth to identify which aquifers are adequately characterized with respect to drinking water quality. Further characterization may involve:

- Identifying potential sources of N in samples,
- The ionic composition for source identification (river vs. local groundwater),
- Stable isotopes of N and O to delineate sources and assess denitrification that may affect nitrate loading to groundwater,
- Tritium/helium-4 for age dating the water, and
- Other constituents such as waste water indicators (caffeine or pharmaceuticals such as non-

steroidal anti-inflammatory drugs) for indications of septic system contamination of drinking water).

It is possible that some of these constituents are analyzed from samples collected by the GCP to confirm possible contamination of wells by improperly functioning septic systems. Adequate characterization is determined by the heterogeneity of the groundwater basin with respect to subsurface structure and texture. Consequently, the analyses will be adjusted as necessary as the characterization process moves forward. The minimal set of constituents sampled from all wells includes those listed in Table 3 of the MRP No. R3-2012-0011-01, MRP No. R3-2012-0011-02, and MRP No. R3-2012-0011-03 documents except for those constituents that can be measured in the field (see also Table 1 below). The goal is to gather as much available information as possible to determine:

1. Location/depth of aquifers in sub-basins
2. Nitrate concentration of groundwater in aquifers at different depths
3. Source and age of water in aquifers of different depths
4. Recharge rate of different aquifers
5. Relative vulnerability of aquifers to contamination from soluble compounds like nitrate

This information will be used to:

1. Prioritize regions for monitoring activities
 - a. Monitoring to fill data gaps
 - b. Monitoring to assist identification of drinking water wells with elevated nitrate concentration
2. Develop a long term monitoring program to evaluate trends in groundwater quality
3. Identify regions where the cooperative program will use management practice information submitted by growers to the Regional Board to assess management practice implementation levels
4. Identify regions where grower contact will be initiated to discuss management practices refinements or changes

The groups of analyses and their function are provided in Table 1 below.

Table 1 Constituents that will be monitored during Phase II activities.

| Function | Constituents |
|--|--|
| Compliance with Conditional Waiver and MRPs¹ | pH, SC, TDS, total alkalinity, CA, Mg, Na, K, SO ₄ , Cl, NO ₃ ⁻ , NO ₂ |
| Potential for denitrification | Oxidation-reduction potential, N ¹⁵ and O ¹⁸ isotopes |
| Nitrogen source analysis | N ¹⁵ and O ¹⁸ isotopes, pharmaceuticals |
| Age of water in aquifer | Tritium/H4, chlorofluorocarbons ² |
| Source of water | Ca, Mg, Na, K, Cl, CO ₃ , SO ₄ , Br, O ¹⁸ , deuterium, N ¹⁵ |

¹ Constituents from Table 3 of MRP documents

² Dating can be accomplished with one or the other set of constituents, both are usually not necessary

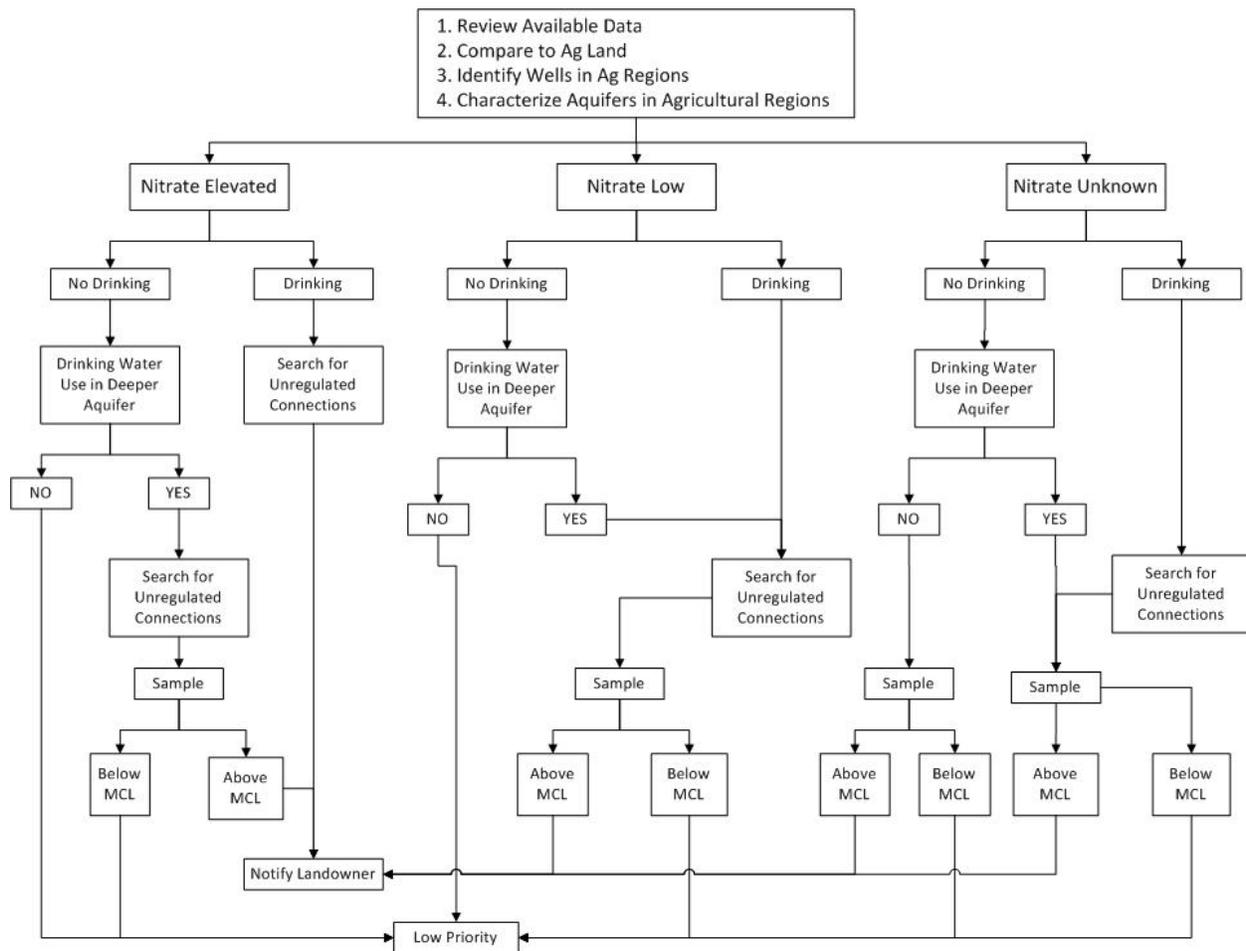
Aquifer Characterization

The goals of the characterization tasks are to identify contaminated aquifers used for drinking water by single connections or a small number of connections, and also to prioritize regions for evaluation of management practices used by growers to reduce discharges to groundwater. Assessment of the available data will be conducted on two levels; nitrate concentrations in aquifers used for drinking water supply, and broader characterization of basins and aquifers. A list of aquifers included as part of the characterization process will be provided to the Regional Board within 30 days of acceptance of the proposal, by which time the geographic extent of grower participation is known. If available data are insufficient to perform the characterization, additional groundwater quality data will be collected by sampling wells for the constituents listed in Table 3 of the MRP No. R3-2012-0011-01, MRP No. R3-2012-0011-02, and MRP No. R3-2012-0011-03 documents. In some locations, additional constituents (Table 1) will be analyzed to fully characterize aquifers.

When wells are identified as having concentrations of nitrate above the primary maximum contaminant level (“MCL”) and are being used for drinking water supply, the GCP will establish a process to notify the landowner/operator of monitoring results.

The process for characterizing the nitrate concentration of water in various basins and aquifers is outlined in Figure 2. The first step involves evaluating basins and aquifers at the landscape scale. Available water quality data will be placed into a geospatial framework by using GeoTracker GAMA information to map well locations. All parcel-based locations will be converted to a point. These locations will be mapped using the USDA cropland GIS database to identify wells located in areas where agriculture may have contributed to contamination. Finally, aquifers at different depths will be characterized with respect to the concentration of nitrate. Characterization will be performed using standard geospatial techniques such as kriging. The most recent available data will be used in the analyses to characterize the aquifers. For example, if data from 20 years ago indicates the concentration of nitrate in the aquifer was above the MCL, but data collected within the last 5 years indicates that the concentration of nitrate is below the MCL, the most recent data will be used to categorize the aquifer.

Figure 2. Prioritization scheme for sampling wells.



Aquifers used for drinking water will be categorized into those aquifers with concentrations of nitrate:

- Known to be below the MCL,
- Known to be above the MCL, and
- Poorly known or unknown concentration of nitrate.

Once aquifers are categorized, well locations will be placed back onto the map to provide confirmation that the geospatial categorization is valid. Once confirmed, the process of identifying and prioritizing potentially contaminated wells will proceed as shown in Figure 2. In some areas, there may be adequate data available for deeper aquifers but limited data available in shallower aquifers.

For those areas where concentration of nitrate is known to be elevated above the MCL, the areas will be evaluated to determine if the aquifer is used for drinking water, and if so, by which type of connection (single connection, small number of connections, large enough number of connections to be sampled and regulated by county environmental health agencies). If the aquifer is not used for drinking water but is located below an aquifer that is used for drinking water, unregulated connections in the upper aquifer will be located and sampled to determine if they are also contaminated. Because deeper groundwater with concentrations of nitrate above the MCL are likely to sit below aquifers that also have concentrations of nitrate above the MCL, locating and sampling these wells is a high priority. If it appears that no wells draw drinking water from aquifers above a deeper aquifer that is known to be contaminated, the region will become lower priority for further evaluation of water quality and management practices.

Aquifers characterized as having concentrations of nitrate below the MCL will also be split into those aquifers that do not serve as a drinking water supply, and those that are known to be sources of drinking water (Figure 2). Again, those aquifers that do not supply drinking water will be divided into aquifers that lie below shallower aquifers that are sources of drinking water and those that have no aquifers above that are sources of drinking water. Aquifers in the latter category become a low priority for future monitoring and evaluation of management practices. Aquifers in the former category will be searched for unregulated drinking water supply wells. Some wells will be sampled to confirm that they supply water with concentrations of nitrate below the MCL.

Aquifers may not be adequately characterized because there are numerous wells with no data, or few wells. In these areas, groundwater will need to be sampled to complete the characterization; the primary question is the priority given to characterization of various regions. An independent assessment of the number and location of single or small connection wells will allow the assessment team to determine if there are drinking water wells present in these uncharacterized aquifers. If wells exist but are not used for drinking water, it will be determined if shallower aquifers exist. Aquifers that supply no drinking water will be given a lower priority for sampling. Aquifers that provide drinking water will be given a higher priority for sampling. Although possible, it is unlikely that there are agricultural areas with no wells. If these areas are identified, the cooperative program will enter into discussions with Regional Board staff to determine if obtaining information about groundwater quality justifies the expense of drilling monitoring wells.

The prioritization for sampling is outlined in Table 2.

Table 2 Prioritization for sampling to characterize aquifers used for drinking water. The second column reflects the actual use of the water, not the potential use.

| Description of Aquifer | Drinking Water Supply | Priority Level ¹ |
|--|-----------------------|-----------------------------|
| Uncharacterized aquifer | Yes | 1 |
| | No | 2 |
| Uncharacterized shallow aquifers above known contaminated aquifer | Yes | 3 |
| | No | 4 |
| Characterized aquifer with nitrate below MCL | Yes | 5 |
| | No | 6 |
| All other aquifers | Yes | 7 |
| | No | 8 |

¹ Priority level is relative, with 1 being the highest priority

Reporting

Reporting will be done as outlined in Part 2. A. 6 of MRP No. R3-2012-0011-01. By October 1, 2013 and every October 1 thereafter until the expiration of the Conditional Waiver, an annual report of GCP activities will be submitted to the Regional Board. Elements described in Part 2. B. 1 of the same MRP document will be included with the following modifications that are necessary because of the geographic scope of the project. Additionally, the goals of the GCP are to understand the concentration of nitrate in shallow wells used for drinking water and develop sufficient information to characterize the groundwater aquifers. The GCP will provide the following in its annual report:

- Signed transmittal letter
- Number of wells with existing data reviewed for the characterization
- Primary Data Report Characterizations by Partner Agencies
- Water use category aggregated

In addition to the annual report, data will be uploaded to regulatory side of GeoTracker on an annual basis unless a different schedule is requested by the Regional Board. Uploading of data is a simple task and can be done more frequently if requested. If requested, the GCP is willing to meet with the Regional Board staff on a quarterly basis starting in June 2013 to bring staff up to date on program activities, discuss recently acquired data and any analyses performed during the previous quarter, and discuss progress in reaching program milestones.

The GCP will provide data points on irrigation or drinking water wells monitored specifically for this program under the explicit, specific condition that the Regional Water Quality Control Board will provide

adequate protection of the data from the threat of public disclosure. It is understood that the Regional Board staff will be able to review the data to confirm the program's characterizations of the aquifer. To ensure that groundwater data and well information is protected from public disclosure, the GCP will work with the Regional Board to execute a non-disclosure agreement that is consistent with the priorities identified in Attachment A, ***Proposal for the Protection of Groundwater Data and Groundwater Well Locations from the threat of Public Disclosure***, and as summarized here.

- A. Data collected specifically for the Groundwater CMP would be uploaded to the regulatory-only side of geo-tracker. This data would include well GPS location, construction, and water quality (constituents) data.
- B. This data would remain on the regulatory side of Geo-Tracker and would not be available to the public now or in the future on Geo-Tracker.
- C. In the event that there was a request for the information under the California Public Records Act, the Regional Board would protect the data from such disclosure under appropriate provisions of the California Public Records Act because release of such information would compromise food security for the nation. Additionally, the Regional Board would not publically publish, present or use this data in any reports or presentations.
- D. They would characterize the aquifers in an annual public report that aggregates the data, and that is presented in a scientifically defensible manner.

The GCP requires that well location information must be kept confidential by the Regional Board and not be subject to public information requests via the Public Records Act, in relation to lawsuits, or to influence other reports, presentations, diagrams, maps, etc. of the regional board. Protection of this information represents a critical homeland security issue for the production of commodities in the region. For many growers on the Central Coast, groundwater is the only source of irrigation supply water and contamination of aquifers used for irrigation supply would place at risk production of a large portion of the nation's fresh produce as well as the economic well-being of the entire region. This risk applies to all aquifers regardless of depth or primary use because contamination of any overlying aquifer would eventually reach deeper aquifers. Therefore, the cooperative program requests that any data on groundwater quality and well location provided to the Regional Board be kept completely confidential and not be released to the public. This confidentiality includes locating wells as points on maps included in reports or presentations as those images can be used to locate wells in the vicinity. The condition outlined here is an absolute priority of this program. Without these assurances, the program won't be able to provide any specific data.

The information below will be uploaded to the "Regulatory-Only" side of GeoTracker only when these requirements (see Attachment A) are met and will not be included in a public annual report:

- State identification number if available
- Well location (latitude and longitude)
- Well construction information (if available)

- Sampling data including QA data

Phase II

Phase II involves the sampling and analysis of selected wells including development of the Quality Assurance Project Plan (QAPP) and sampling of groundwater wells. As indicated above, sampling will be initiated within 120 days of Executive Officer approval and will continue until a sufficient number of wells are sampled to adequately characterize shallow groundwater from across the Northern Central Coast region. Progress toward characterization will be discussed with Regional Board staff and the number of wells sampled will be determined as more information is collected and analyzed.

Quality Assurance Project Plan (QAPP)

The GCP will develop a QAPP to guide sampling and analysis. Sampling protocols and analytical methods will be used as specified in Table 3 of the MRP No. R3-2012-0011-01, MRP No. R3-2012-0011-02, and MRP No. R3-2012-0011-03. When the GCP uses analytical methods for constituents not included in Table 3, full descriptions of the methods will be included in the QAPP as well as the analytical laboratories that will be contracted to perform the analyses. The QAPP will be SWAMP-comparable. The GCP will develop the QAPP within 60 days of the approval of the work plan by the Executive Officer.

Sampling and Analysis

The biggest challenge is to determine which wells will be monitored for which constituents (Table 1 lists possible constituents). All wells will be monitored for the list of constituents in Table 3 of the MRP No. R3-2012-0011-01, MRP No. R3-2012-0011-02, and MRP No. R3-2012-0011-03. Sample locations and constituents will be identified in Phase I. Once regions needing characterization are identified, they will be prioritized according to the scheme outlined in Table 2. Well locations will be established by a variety of methods including 1) evaluation of DWR well construction data, 2) grower knowledge of shallow wells on their property, and 3) self-identification after outreach to the community. Once wells are identified, locations will be verified and the exact constituents to be sampled will be determined based on how well the shallow aquifer is characterized.

Phase III

Phase III is the development of the Groundwater Assessment Report (GAR). The GAR is necessary to provide the information required to develop a groundwater trend monitoring program and initiate development of the outreach program.

The GAR is the foundation for all future work conducted by the GCP. It provides the scientific basis for any future monitoring that will be performed. GAR elements include:

- Assessment of all available and applicable data and information to categorize and prioritize groundwater aquifers for monitoring and outreach; and
- Provide a baseline from which trends in groundwater quality can be documented.

The GAR will contain sufficient information to allow the characterization of existing groundwater quality conditions.

GAR components that will be included in an annual report in Year 5 will include:

- Detailed land use information with emphasis on irrigated agriculture;
- Aggregated Description of wells sampled including location, depth, and well use;
- Depth to groundwater;
- Recharge rates;
- Aquifers used as drinking water supply;
- Soil survey analysis based on USGS data
- Aggregated concentration in groundwater of constituents listed in Table 3 of the MRPs; and
- Current monitoring programs within the region that could be used to provide information on groundwater quality.

Data points substantiating the Proposed GAR components, which will be uploaded to the secure site of Geo-Tracker, and done so with assurances of data confidentiality as outlined in Attachment A, include:

- Data points developed specifically for the GCP supporting concentration in groundwater of constituents listed in Table 3 of the MRPs; and

Some of these data will be provided to the Regional Board as part of the Annual Report submitted by October 1 of each year. Many of these data are already available from numerous sources for much of the Northern Central Coast region. If the data are not available, an attempt will be made to develop them during the period of the current Order if it is determined that they are critical to developing a long term cooperative groundwater program. Because the elements of a long-term program have not been determined, the development of the GAR will consist of bringing together the existing information with the monitoring data developed during the Phase II characterization.

Any monitoring program, including the groundwater monitoring program outlined below, must have the larger goal of using monitoring and survey data to inform growers about the practices that are effective in reducing the movement of nitrate (or other water soluble constituents) to groundwater.

An evaluation of the groundwater aquifers will be undertaken to fully characterize water quality. A subset of the wells sampled above, and wells in deeper aquifers will be sampled for a larger set of constituents from Table 1. The program will evaluate the distribution of nitrate concentrations relative to geographic features, hydrogeologic features, estimated recharge rates, and soils. Ancillary data (isotopes, age dating, field parameters, major ions) will be used to provide information about sources and processes affecting concentration of nitrate. Age dating will be used to estimate travel times along flow paths. By the end of Phase III, the following will be accomplished:

1. Sources and processes affecting nitrate concentrations in groundwater will be identified,
2. Temporal trends in groundwater quality will be established,
3. Regions where information on management practices could be used to evaluate potential to reduce discharges to groundwater will be delineated.

How we Anticipate the Three Phases Influencing Future Projects

As the program matures past the period of the current Conditional Waiver, the GCP could work with the member growers in outreach programs, if and where it is determined that outreach is necessary. This priority will be more fully scoped once the data gaps are identified and actions implemented to provide the information necessary to provide stakeholders with an understanding of groundwater quality conditions across the region.

Groundwater Cooperative Program Elements

The GCP contains the following elements:

- Member Organization and Member Responsibilities; and
- Monitoring and Reporting program.

Member Organization and Member Responsibilities

The purpose of the cooperative program's organizational structure is to organize agricultural landowners and growers to support cooperative program activities, and to conduct the monitoring, reporting, and outreach activities.

To perform these tasks, it is necessary to have an organization in place to:

- Collect and manage the funds to pay for required activities;
- Conduct outreach, implement, and assume responsibility for the tasks to be completed; and
- Coordinate with the Regional Board to resolve issues that may arise.

Organization responsibilities include:

- Document its organizational and management structure;
- Provide members with annual summaries of expenditures of fees and revenue;
- Submit an annual list of cooperative program members; and
- Supervise and perform groundwater monitoring and reporting activities as required by the Conditional Waiver.

The GCP's goal is inform growers about their responsibility to use farming practices that are protective of groundwater resources. This goal needs to be accomplished with a cost effective data collection program to properly characterize groundwater quality, and to assist growers in implementing effective practices to improve groundwater quality.

Participating in the GCP will carry responsibilities for members including:

- Paying dues necessary to fund GCP activities (monitoring, reporting, outreach); and
- Completing any required reports requested by the GCP.

Failure to meet membership responsibilities would result in dismissal from the GCP. Once a grower is dismissed from the GCP, their name is no longer included in the annual member list provided to the Regional Board by the GCP organization. These responsibilities provide assurances to the Regional Board and stakeholders that membership in the GCP provides for the proper characterization of local

groundwater conditions and a commitment on the part of members to be protective of groundwater quality.

Groundwater Organizational Structure

Currently, agricultural landowners and growers interested in developing a cooperative groundwater program have formed a groundwater task force to fund the early activities such as development of this work plan. This task force meets regularly to guide work plan development and plan for the administrative structure of the permanent guiding entity.

There are two options available for developing a responsible entity to operate the GCP; developing an entirely new entity, or incorporating the new GCP into Preservation Inc., the program that exists to conduct the ambient surface water monitoring program for growers in the region. A description of both processes with timelines is outlined below. Development of the two options in parallel continues until a date no later than 30 days of approval of the final program by the Executive Officer when Preservation Inc. must decide if it is willing to accept a groundwater program. If Preservation Inc. and the task force overseeing the development of the GCP agrees to house the cooperative groundwater program's administration within Preservation, Inc., development of an independent entity will cease and the program will move forward under Preservation Inc. If Preservation Inc. does not take action within 30 days of approval of the GCP by the Executive Officer, or determines that it is not in its best interest to include a groundwater program, the independent entity will be formed and program activities will continue under the new entity. Either a new organization or Preservation, Inc.'s structure will be fully amended to accept such a program within 90 days of approval of the program by the Executive Officer.

Currently, development of the groundwater program is funded by a group of interested entities and administered through the Grower-Shipper of Central California. Sufficient funds exist to develop this work plan and conduct Phase I activities through summer 2013. At that point, an administrative structure must be determined so that additional funds can be raised to support program activities through 2013. These funds can be obtained either from the original task force or through an assessment to the growers enrolled in the cooperative groundwater program. The optimal mechanism will depend on the option for administrative support that is selected. But, that option will be known within 30 days of approval of the GCP by the Executive Officer, so that additional funds can be raised to support groundwater program activities.

Option 1: Stand-alone organization

Northern Central Coast Groundwater Association (NCCGA)

Goal: Organizing and maintaining a long term GCP for the northern Central Coast

Organizational Structure

1. Member organization
2. Nine member board of directors
3. Bylaws are specific to the entity goals and mission
4. Staff: executive director, administrative assistant/data base management
5. Consultants hired (contracted) to perform specific deliverables and plans
 - a. Plan to fill data gaps in groundwater data
 - b. Groundwater assessment report
 - c. Groundwater trend monitoring network (developed as needed under the next Order in 2017)
 - i. Monitoring
 - ii. Reporting
6. Organization funded by dues assessed per acre of irrigated cropland
 - a. Supporters supply seed money to write plan, create organization
 - i. This seed money would represent a credit toward future membership fees.
 - b. Annual dues of \$1-\$2/ac + \$50 per membership

Table 3 Timeline for development of an independent entity.

| Dates | Activity |
|---|--|
| March – Within 30 Days of Approval by EO | <ol style="list-style-type: none"> 1. Create bylaws 2. Identify and appoint board of directors 3. Develop cooperative monitoring plan Phases I – III 4. Initiate Phase I activities |
| Within 90 Days of Approval by EO | <ol style="list-style-type: none"> 5. Hold first organization meeting with board or directors 6. Present committee structure/organizational plan to Water Board 7. Collect first year’s dues |
| March – August 2013 | <ol style="list-style-type: none"> 8. Identify data gaps in groundwater information 9. Submit first progress report to Water Board (June), hold meetings with Water Board staff as necessary |
| Within 120 Days of Approval by EO | <ol style="list-style-type: none"> 10. Initiate Phase II groundwater monitoring for highest priority areas 11. Continue identifying and prioritizing agricultural regions on Central Coast for Phase II monitoring |
| Within 180-270 Days of Approval by EO | <ol style="list-style-type: none"> 12. Finalize Phase I activities |
| November 2013 – February 2014 | <ol style="list-style-type: none"> 13. Invoicing period for annual dues 14. Continue Phase II monitoring activities |
| 2014 – 2016 (as needed) | <ol style="list-style-type: none"> 15. Phase II monitoring activities |
| 2017 | <ol style="list-style-type: none"> 16. Complete comprehensive characterization of groundwater conditions in Central Coast agricultural region |

Option 2: Add groundwater responsibilities to Preservation, Inc.

Goal: Form an independent committee within Preservation Inc. (PI) to develop and implement a long term cooperative groundwater monitoring program for northern Central Coast growers

Organizational structure

1. Have Preservation Inc. Board of Directors adopt a Resolution that authorizes a new committee focused solely on the groundwater cooperative monitoring and reporting responsibilities, and indicate in the Resolution how the new committee is allowed to operate.
2. Committee structure: chairman plus eight voting members
3. Staff; committee executive director, administrative assistant/data base management
 - a. Committee and its staff will operate as an autonomous committee of PI. Existing board of PI would hold a vote to enact the Groundwater Committee with groundwater program related decisions moving forward made by the committee members. The groundwater committee will report back to the Board of Directors on an annual basis.
4. Consultants hired (contracted) to perform specific deliverables and plans
 - a. Plan to fill data gaps in groundwater data
 - b. Groundwater assessment report
 - c. Groundwater trend monitoring network (developed as needed under the next Order in 2017)
 - i. Monitoring
 - ii. Reporting
5. Committee activities funded by dues assessed per acre of irrigated cropland
 - a. Supporters supply seed money to write plan, modify bylaws
 - b. Annual dues of \$1-\$2/ac per membership (starting in 2014) for support of groundwater program activities
 - c. PI pays state irrigated lands fee (\$0.57 per acre) for existing surface water members who are also in groundwater program; groundwater-only members add \$0.57 per acre to \$1-\$2 per acre dues. PI pays those member fees to state.

Table 4 Timeline for incorporating the GCP into Preservation Inc.

| Dates | Activity |
|--|--|
| Within 90 Days of Approval by EO | <ol style="list-style-type: none"> 1. Develop plan for creating committee 2. Meet with PI Board of Directors/Agriculture committee to present plan and obtain approval to develop independent committee 3. If not approved, activities are conducted under the auspices of independent group outlined in Table 1 4. Develop cooperative monitoring plan Phases I – III 5. Initiate Phase I activities |
| Within 90 Days of Approval by EO | <ol style="list-style-type: none"> 6. Hold first committee meeting 7. Collect dues 8. Present committee structure/organizational plan to Water Board |
| March – August 2013 | <ol style="list-style-type: none"> 9. Identify data gaps in groundwater information 10. Submit first progress report to Water Board (May 2013) 11. |
| Within 120 Days of Approval by EO | <ol style="list-style-type: none"> 12. Initiate Phase II groundwater monitoring for highest priority areas 13. Continue identifying and prioritizing agricultural regions on Central Coast for Phase II monitoring |
| Within 180-270 Days of Approval by EO | <ol style="list-style-type: none"> 14. Finalize Phase I activities |
| November 2013 – February 2014 | <ol style="list-style-type: none"> 15. Invoicing period for annual dues 16. Continue Phase II monitoring activities |
| 2014 – 2016 (as needed) | <ol style="list-style-type: none"> 17. Phase II monitoring activities |
| 2017 | <ol style="list-style-type: none"> 18. Complete comprehensive characterization of groundwater conditions in Central Coast agricultural region |

Timetable and Milestones

Table 5 Project timetable and milestones.

| Year | GCP Element | Milestone Achieved | Deliverable | Date |
|------|----------------------|--|--|---------------------------------------|
| 2013 | | | | |
| | Project Coordination | Work plan submission | Work plan | March 15 |
| | Phase I | Initiate characterization of groundwater aquifers | | March 18 |
| | GCP Administration | GCP organizational structure determined ¹ | Report of GCP administrative structure | Within 30 Days of EO Approval |
| | Phase I | QAPP submission | QAPP | Within 90 Days of EO Approval |
| | Phase I | Progress report submitted to Regional Board | Progress Report | June 15 |
| | Project Coordination | Quarterly meeting with Regional Board staff ² | | June |
| | Phase II | Initiate sampling of wells in agricultural regions | | Within 120 Days of Approval of EO |
| | Project Coordination | Quarterly meeting with Regional Board staff | | September |
| | Phase I and II | Submit Annual Report | Annual Monitoring Report | October 1 |
| | Phase II | Upload monitoring data to The Data Secure-side of GeoTracker | Groundwater Quality Data | October 1 |
| | GCP Administration | Begin Invoicing of members | | November |
| | Project Coordination | Quarterly meeting with Regional Board staff | | November |
| | Phase I | Complete Phase I activities | | Within 180-270 Days of Approval by EO |
| 2014 | | | | |
| | Phase II | Continue monitoring of shallow groundwater wells | | January |

| Year | GCP Element | Milestone Achieved | Deliverable | Date |
|------|----------------------|--|--------------------------|-----------|
| | Project Coordination | Quarterly meeting with Regional Board staff | | March |
| | Project Coordination | Quarterly meeting with Regional Board staff | | June |
| | Project Coordination | Quarterly meeting with Regional Board staff | | September |
| | Phase I and II | Submit Annual Report | Annual Monitoring Report | October 1 |
| | Project Coordination | Upload monitoring data to GeoTracker | Groundwater Quality Data | October 1 |
| | GCP Administration | Invoicing of members | | November |
| | Project Coordination | Quarterly meeting with Regional Board staff | | December |
| 2015 | | | | |
| | Phase II | Continue monitoring of shallow groundwater wells | | January |
| | Project Coordination | Quarterly meeting with Regional Board staff | | March |
| | Project Coordination | Quarterly meeting with Regional Board staff | | June |
| | Project Coordination | Quarterly meeting with Regional Board staff | | September |
| | Phase I and Phase II | Submit Annual Report | Annual Monitoring Report | October 1 |
| | Phase II | Upload monitoring data to GeoTracker | Groundwater Quality Data | October 1 |
| | Project Coordination | Quarterly meeting with Regional Board staff | | December |
| 2016 | | | | |
| | Phase II | Complete monitoring of shallow groundwater wells | | March |
| | Project Coordination | Quarterly meeting with Regional Board staff | | March |
| | Phase III | Initiate GAR | | March |
| | Project Coordination | Quarterly meeting with Regional Board staff | | June |
| | Project Coordination | Quarterly meeting with Regional Board staff | | September |

| Year | GCP Element | Milestone Achieved | Deliverable | Date |
|------|-------------|---------------------------|-------------------------------|-----------|
| | | Board staff | | |
| | Phase III | Submit GAR/Annual Report | Groundwater Assessment Report | October 1 |
| | Phase II | Upload data to GeoTracker | Groundwater Quality Data | October 1 |

¹ Once GCP organization structure is determined, the timetables for the operation of those organizations are provided in the tables above.

² Quarterly meetings are proposed but the GCP will discuss the need and timetable for any meetings that are necessary

Attachment A

Proposal for the Protection of Groundwater Data and Groundwater Well Locations from the threat of Public Disclosure

The northern Central Coast of California is one of the most productive agricultural regions in the nation, and is a leading producer of the nation's fresh vegetables. Maintaining the safety of agriculture in the Central Coast area of California is essential to maintaining food security for the nation. To do so, the agricultural industry as well as local, state and federal agencies must work collectively to protect agriculture and the resources it depends on from the threat of agro-terrorism. An essential resource for agriculture in the Central Coast is its groundwater resources. Without groundwater resources, much of the Central Coast agriculture would cease to exist. Thus, protecting agriculture from agro-terrorism means by extension protecting its groundwater resources from the same potential threats.

Agro-terrorism is a real threat in California. For example, in January of this year, Harris Feeding Company in Coalinga, California lost 14 trucks due to a domestic terrorist attack. This attack came days after the Center for Food Safety lost a challenge to USDA's regulations allowing the use of round-up ready alfalfa. Further, securing the nation's food supply is an important objective of USDA, and they are working closely with states to ensure that food security is a top priority across the nation.

Considering the need to protect our nation's food supply, and the significant role that Central Coast agriculture plays in the nation's supply of fresh vegetables, it is imperative that groundwater resources in the Central Coast be protected from the threat of foreign and/or domestic terrorist attacks. To do so, the Northern Central Coast Cooperative Groundwater Program finds that in the interest of national food security, groundwater data and well location information collected as part of this program need to be protected from public disclosure. Such exception from public disclosure is consistent with the California Public Records Act, which provides that an agency may justify the withholding of any record that on the facts of the particular case "the public interest served by not disclosing the record clearly outweighs the public interest served by disclosure of the record." (Govt. Code § 6255(a).) Further, California courts do consider "potential threats to security when weighing the public interest in withholding the information against that supporting disclosure." (*American Civil Liberties Union v. Superior Court of San Francisco* 202 Cal.App.4th 55, 71.)

Accordingly, the Northern Central Coast Cooperative Groundwater Program proposes that as part of the Central Coast Water Board's approval of this Cooperative Groundwater Program, that the Central Coast Water Board enter into a non-disclosure agreement with the Cooperative Groundwater Program that includes the following:

- Central Coast Water Board agrees that any data collected by the Cooperative Groundwater Program would be uploaded into the State's Geotracker database on the "Regulatory-Only" portion of the database, which would prevent public access to the data and information.

- Central Coast Water Board agrees that data entered into Geotracker from the Cooperative Groundwater Program would remain and be retained only in the “Regulatory-Only” portion of the database, and would not be available to the public through Geotracker currently or anytime in the future.
- Central Coast Water Board agrees that should they receive a request for release of such information pursuant to a request under the California Public Records Act, it would respond in writing that due to the need to protect the nation’s food supply and for food security reasons that the public’s interest in not disclosing the information outweighs any public interest in disclosing the information.
- Central Coast Water Board agrees that the data and well information provided would not be shared or cited in public reports or presentations of the Central Coast Water Board.

Northern Central Coast Cooperative Groundwater Program agrees to provide to the Central Coast Water Board an annual public report that characterizes groundwater quality in local aquifers using the data and information collected. However, the annual public report would be in an agreed upon format that aggregates the information in a scientifically valid manner. Central Coast Water Board would retain the authority to review the annual public report to confirm its adequacy, and to request changes. Changes to the annual public report would be made as mutually agreed upon between the Cooperative Groundwater Program and the Central Coast Water Quality Control Board.