

Prioritization of Implementation (DRAFT – intended to be inserted in Section 4.3.2.1 of SNMP)

Considering the size of the Central Valley Region, and the varying degree of nitrate concentrations found in groundwater basins/subbasins throughout the region, it is impractical and unreasonable to expect that the nitrate management requirements will be implemented by everyone, everywhere, at the same time. Rather, it is appropriate for this SNMP to recommend a process and criteria for the Central Valley Water Board to utilize in determining what areas of the Central Valley Region should be prioritized for implementation of the nitrate management requirements. The recommended process would direct the Central Valley Water Board to consider water quality based factors, and other relevant information, in its identification of areas that should be prioritized first for implementation of the nitrate requirements, and identify areas that would be considered lower priority. The SNMP recommends a two-step process for identifying priority areas under which the nitrate management requirements contained herein should be implemented within the Central Valley Region. In general, these two steps are described as follows:

- **Step 1** –The SNMP uses water quality factors to initially identify higher priority areas on a larger basin/subbasin basis based solely on available water quality data. This step, which was largely conducted as part of the development of this SNMP, illustrates spatially higher priority areas at both one square mile grid and aggregate level (groundwater basin/subbasin) scales. Notably, the identification of priority areas based on available water quality data and at this large of a scale may not accurately portray which areas in a basin/subbasin are truly at risk for nitrate contamination in drinking water. Thus, this is an initial step that must be supplemented with additional analysis by the Central Valley Water Board to confirm that all areas of a higher prioritized basin/subbasin are at risk, or that areas in a lower prioritized basin/subbasin are not at risk.
- **Step 2** – To confirm or revise the initial water quality-based prioritization in Step 1 for the groundwater basin/subbasins, the Central Valley Water Board should conduct additional analysis to identify priority areas for implementation of nitrate requirements. Under Step 2, the Central Valley Water Board may identify priority areas that are smaller portions of a larger groundwater basin/subbasin identified in Step 1, or re-prioritize certain portions of a larger basin/subbasin. The additional analysis should include (a) consideration of the water quality data that was relied on and that triggered the priority ranking in the SNMP; and (b) an evaluation to determine if the data are representative of the area identified, or if more recent data and/or information are available or has been provided that better indicates if the area (or a subarea) in question is at risk for nitrate contamination in drinking water supplies. The Central Valley Water Board should also consider in its additional analysis if groundwater is the predominate source of drinking water, or if surface water supplies are the major source of drinking water. After conducting the additional analysis, the Central Valley Water Board should then develop a prioritized list of areas targeted for implementation of the SNMP, and propose a schedule of implementation for these prioritized areas. Areas not prioritized will still need to comply with the SNMP nitrate requirements in the future, but implementation of such requirements shall be phased in by the Central Valley Water Board as resources allow.

Based on this general description, following is additional information regarding how the SNMP has initially identified higher priority areas for SNMP implementation (Step 1) and the types of additional analyses that should be conducted under Step 2 to establish the final prioritized list and schedule of areas targeted for implementation.

Step 1 - Initial Prioritization Using Water Quality Factors

The SNMP relied on the following water quality factors to complete the first step to initially identify areas with a higher priority based solely on groundwater quality data:

- Ambient nitrate water quality in the upper zone, calculated as a volume-weighted average nitrate concentration (as N) in the upper zone;
- Predicted nitrate water quality in 50 years in the upper zone, calculated as a volume-weighted average nitrate concentration (as N); and
- Ambient nitrate water quality in the upper zone, calculated as an arithmetic average nitrate concentration (as N) of all wells.

These water quality factors were assessed at one square mile grid and groundwater basin/subbasin scales based on the data developed for the final assessment of nitrate conditions in groundwater in the Central Valley (Luhdorff & Scalmanini and LWA 2016a) (See Section 3.3). Using these water quality factors and the methodology described in **Attachment D-4, Table 4-2** lists the Initial Prioritization Scores for the larger groundwater basins/subbasins. This initial ranking serves as preliminary information to be considered as part of the Additional Analysis step described below.

Step 2 – Additional Analysis

Using the initial ranking developed in Step 1, this SNMP then recommends that the Central Valley Water Board conduct additional analysis to develop a final list of prioritized areas, and a schedule for implementing the nitrate requirements in those prioritized areas. The additional analysis should consider the following information in establishing priority areas for implementation of nitrate requirements:

- (a) Degree to which areas (or subareas) with known drinking water supply contamination in groundwater in the upper zone in groundwater basins/subbasins will be addressed in a timely manner through the current order of priority based on water quality factors alone (Table 4-2).
- (b) Consideration of additional data/information provided by discharger(s) and/or other stakeholders within a basin/subbasin (or subarea) that demonstrates that the nitrate concerns as identified in Tables 4-2 have been addressed or will be addressed via another program or activity.
- (c) Consideration of additional data/information provided by discharger(s) and/or other stakeholders within a basin/subbasin (or subarea) that demonstrates that the ranking in Table 4-2 is not representative of groundwater drinking water conditions and that the basin/subbasin (or subarea) does not need to be prioritized because there are not concerns

or risks for nitrate contamination to be found in groundwater relied on for drinking water purposes.

- (d) Degree to which the area identified as a higher priority by water quality factors actually has impacted drinking water users (i.e., drinking water is predominately a surface water supply, or drinking water supplies are primarily groundwater).
- (e) Consideration of changes in groundwater basin/subbasin boundaries by DWR, which may affect the spatial order as presented in Table 4-2.
- (f) Availability of Central Valley Water Board staff resources, which may affect the number of basins/subbasins (or subareas) that may be included on the Central Valley Water Board's list of prioritized areas, and its schedule of implementation.

The CV-SALTS database is the source of the data used to establish the initial prioritization score (Luhdorff & Scalmanini and LWA 2014). This database includes data from all well types in the Central Valley Region, including those used for remediation monitoring. As such, a closer examination of the data used to estimate ambient nitrate concentrations in the upper zone may, in some cases, be warranted under Step 2. This potential need for consideration of additional data/information is addressed by factors (b) and (c) above and illustrated by an example in Attachment D-4 (see Section D4.3).

Regardless of the priority for implementation and schedule established by the Central Valley Water Board in Step 2, nothing prevents a discharger or group of dischargers from implementing the nitrate management requirements in the SNMP prior to receiving a notice to comply, or prevents the Central Valley Water Board from re-prioritizing areas in the future based on new data and information.

Table 4-2. TENTATIVE - Initial Identification of Higher Priority Areas for Implementation of Nitrate Management Requirement Based Solely on Water Quality Factors^{1, 2}

Groundwater Basin/Subbasin (DWR Bulletin 118) ³		Initial Prioritization Score ⁴
No.	Name	
5-22.11	Kaweah	4.47
5-22.03	Turlock	4.08
5-22.08	Kings	3.78
5-22.05	Chowchilla	3.78
5-21.67	Yolo	3.64
5-22.13	Tule	3.64
5-22.04	Merced	3.62
5-22.02	Modesto	3.56
5-22.14	Kern County (Western)	3.36
5-22.07	Delta-Mendota	3.33
5-22.12	Tulare Lake	3.32
5-22.14	Kern County (Northeastern)	3.29
5-22.01	Eastern San Joaquin	3.22
5-22.06	Madera	3.07
5-21.66	Solano	2.97
5-22.14	Kern County (Southeastern)	2.79
5-21.64	North American	2.66
2-4	Pittsburg Plain	2.60
5-22.15	Tracy	2.51
2-5	Clayton Valley	2.20
5-21.62	Sutter	2.14
2-3	Suisun-Fairfield Valley	2.13
5-21.68	Capay Valley	2.05
5-21.52	Colusa	2.01
2-6	Ygnacio Valley	1.95
5-21.61	South Yuba	1.86
5-22.16	Cosumnes	1.80
5-21.57	Vina	1.77
5-21.65	South American	1.76
5-21.58	West Butte	1.66
5-21.54	Antelope	1.44
5-21.50	Red Bluff	1.43
5-21.60	North Yuba	1.39
5-21.56	Los Molinos	1.35
5-21.51	Corning	1.32
5-21.53	Bend	1.31
5-22.10	Pleasant Valley	1.31
5-21.55	Dye Creek	1.30
5-21.59	East Butte	1.29
5-6.02	Rosewood	1.25
5-22.09	Westside	1.17
5-6.01	Bowman	1.07
5-6.03	Anderson	1.02
5-6.06	South Battle Creek	1.01
5-6.04	Enterprise	1.01

¹ Actual priority for implementation will be determined based on additional analyses completed under Step 2, see text² Water quality data source: Luhdorff and Scalmanini and LWA (2016a)³ The Kern County subbasin is split into three parts to be consistent with the Tulare Lake Basin Plan⁴ See SNMP Attachment D-4 for additional information regarding use of water quality data and development of Initial Prioritization Scores