DRAFT BASIN PLAN AMENDMENT

With supporting documentation
contained in the

DRAFT STAFF REPORT FOR THE ACTION PLAN FOR THE RUSSIAN RIVER WATERSHED PATHOGEN INDICATOR BACTERIA TOTAL MAXIMUM DAILY LOAD (August 21, 2015)

The following text is to be inserted into Chapter 4 of the Water Quality Control Plan for the North Coast Region (Basin Plan):

ACTION PLAN FOR THE RUSSIAN RIVER WATERSHED PATHOGEN INDICATOR BACTERIA TOTAL MAXIMUM DAILY LOAD (TMDL)

The Russian River Watershed encompasses 1,484 square miles in Sonoma and Mendocino counties, California. Major municipalities within the watershed include Ukiah, Cloverdale, Healdsburg, Windsor, Rohnert Park, Santa Rosa, and Sebastopol. The watershed also includes numerous unincorporated communities such as Calpella, Hopland, Forestville, Guerneville, and Monte Rio. The 110 mile mainstem channel of the Russian River originates in the Redwood Valley of central Mendocino County about 15 miles north of Ukiah. The Russian River serves as the primary water source for more than 500,000 residents in Mendocino, Sonoma and Marin counties, and for agricultural production in Mendocino and Sonoma counties.

The *Action Plan for the Russian River Watershed Pathogen Indicator Bacteria Total Maximum Daily Load*, hereinafter known as the Russian River Pathogen TMDL Action Plan, or Pathogen TMDL Action Plan, includes concentration-based wasteload allocations (WLAs) and load allocations (LAs), a prohibition of raw and inadequately treated human and domestic animal waste, and implementation actions necessary to attain the Basin Plan bacteria objective, and protect full-body contact recreational use (REC-1) of the Russian River and its tributaries. The overall goal of the Russian River Pathogen TMDL Action Plan is to minimize human exposure to waterborne disease-causing pathogens and to protect uses of water for recreational activities such as wading, swimming, fishing, and rafting.

I. Problem Statement

Several surface waters in the Russian River Watershed are identified on the 2012 Clean Water Act Section 303(d) List of Impaired Waters due to fecal indicator bacteria concentrations that do not support the REC-1 beneficial use nor attain the bacteria objectives. High concentrations of fecal indicator bacteria in ambient waters infer the presence of human and animal fecal waste and associated disease-causing microorganisms that pose a risk to human health. Consequently, humans who recreate in the Russian River and its tributaries are at risk of contracting waterborne diseases.

In this TMDL, two common fecal indicator bacteria, *E. coli* and enterococci bacteria are used to assess whether REC-1 beneficial uses for the Russian River Watershed are supported. These bacteria targets, in combination with the human waste discharge prohibitions, are the basis for the TMDL and load allocations, and fully protect beneficial uses.

II. Sources of Bacteria

Water quality monitoring studies undertaken as part of the TMDL found that fecal indicator bacteria concentrations in surface waters were significantly higher during wet weather periods and within developed areas (i.e., both sewered and septic system areas). Focused assessments also found that fecal indicator bacteria concentrations correlated with parcel density in those areas with only onsite wastewater systems (septic systems), and beach recreational areas were associated with higher concentrations of both Bacteroides and *E. coli* bacteria.

Based on the results of water quality monitoring, the following source categories have the potential to discharge pathogens to surface waters in the Russian River Watershed.

Sources of human fecal waste material include:

- Discharges of treated municipal wastewater directly to surface waters;
- Discharges of untreated sewage from sanitary sewer systems;
- Discharges of wastewater from percolation ponds and through spray irrigation;
- Discharges of runoff from land application of municipal biosolids;
- Discharges of runoff from water recycling projects;
- Discharges from onsite wastewater treatment systems;
- Discharges from recreational water uses and users;
- Discharges from homeless and farmworker encampments and illegal camping; and
- Discharges of storm water to municipal separate storm sewer system (MS4s) and from areas outside MS4 boundaries.

Sources of domestic animal and farm animal waste include:

- Discharges of pet waste;
- Discharges from non-dairy livestock and farm animals; and
- Discharges of manure from dairy cows.

III. Numeric Targets

The numeric targets represent the minimum ambient water quality necessary to support REC-1 of the Russian River and its tributaries. The numeric targets for fecal indicator bacteria, *E. coli* and enterococci, are expressed as a geometric mean (GM) and statistical threshold value (STV) based on colony forming units (cfu) of bacteria per 100 mL water sample. The sampling frequency and period of sampling is important to proper interpretation of monitoring results. Any ambient water quality monitoring of fecal indicator bacteria must be in accordance with an approved monitoring plan, which specifies the appropriate sampling frequency and period of sampling, as defined by the monitoring purpose, season of interest, and other relevant factors. The STV approximates the 90th percentile of the water quality distribution and is intended to be a value that should not be exceeded by more than 10% of the samples used to calculate the GM.

E. coli Bacteria Numeric Targets:

≤ 100 cfu/100 mL as a geometric mean
≤ 320 cfu/100 mL as a statistical threshold value

Enterococci Bacteria Numeric Targets:

≤ 30 cfu/100 mL as a geometric mean
≤ 110 cfu/100 mL as a statistical threshold value

IV. TMDL Calculations and Allocations

The TMDL and waste load allocations (WLAs) and load allocations (LAs) are expressed as receiving water concentrations of *E. coli* and enterococci bacteria. An implicit margin of safety is incorporated into the TMDL through the use of conservative assumptions. Most notably, the TMDL and allocations are based on criteria for *E. coli* and enterococci that are calculated to result in no more than 32 illnesses/1000 people, rather than the alternative of 36 illnesses/1000 people, as defined by U.S.EPA (2012). As with the numeric targets, the WLAs and LAs are designed to achieve the minimum ambient water quality necessary to support REC-1 of the Russian River and its tributaries. The WLAs and LAs are expressed as a geometric mean (GM) and statistical threshold value (STV) based on colony forming units (cfu) of bacteria per 100 mL water sample. The sampling frequency and period of sampling is important to proper interpretation of monitoring results. Any WLAs or LAs monitoring of fecal indicator bacteria must be in accordance with the appropriate sampling frequency and period of sampling defined in the controlling

regulatory mechanism. The controlling regulatory mechanism for each bacteria source category is described in Table 1.

E. coli Bacteria WLAs and LAs:

≤ 100 cfu/100 mL as a geometric mean
≤ 320 cfu/100 mL as a statistical threshold value

Enterococci Bacteria WLAs and LAs:
≤ 30 cfu/100 mL as a geometric mean
≤ 110 cfu/100 mL as a statistical threshold value

V. Implementation

A. Fecal Waste Discharge Prohibition
In accordance with Water Code section 13243 and in order to achieve the water quality objective for bacteria, protect present and future beneficial uses of water, protect public health, and prevent nuisance, this TMDL sets forth the following discharge prohibition:

> *Discharges of waste containing fecal waste material from humans or domestic animals to waters of the state within the Russian River Watershed that cause or contribute to an exceedance of the bacteria water quality objectives not authorized by waste discharge requirements or other order or action of the Regional or State Water Board are prohibited.*

Examples of domestic animals include, but are not limited to, cows, horses, cattle, goats, sheep, dogs, cats, or any other animal(s) in the care of any person(s).

B. Implementation Actions
Table 1 describes the specific implementation actions that shall be taken to achieve the TMDL and meet water quality standards for bacteria in the Russian River Watershed. Information about the necessary actions to implement the TMDL is also presented in Section 10 of the *Staff Report for the Action Plan for the Russian River Pathogen Indicator Bacteria TMDL*.

The implementation plan builds upon previous and ongoing successful efforts to reduce pathogen loads in the Russian River and its tributaries, and requires actions consistent with the California Water Code (Wat. Code § 13000 et seq.); the state's Nonpoint Source Pollution Control Program (Wat. Code § 13369) and its Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program; and the Fecal Waste Discharge Prohibition.

To implement requirements set forth in the implementation plan, the Regional Water Board will rely on existing regulatory tools (individual and general WDRs, and individual and general Waivers of WDRs). Where implementation actions are best developed and implemented by local public agencies, the Action Plan requires the submittal and implementation of Bacteria Load Reduction Plans.

If the implementation actions identified in Table 1 fail to be implemented by the implementing party or if the implementation actions prove to be inadequate, the Regional Water Board will take additional permitting and/or enforcement actions, as necessary.

B.1. Bacteria Load Reduction Plan (BLRP)

A Bacteria Load Reduction Plan (BLRP) is a detailed implementation plan prepared by a local agency or other designated implementing party that describes the actions the party will take to achieve WLAs and LAs specified by the TMDL. BLRPs must identify, eliminate, reduce, and clean up existing sources of pathogens discharged to surface waters, and establish a regulatory framework by which pathogen sources are appropriately controlled. BLRPs can be developed individually or in cooperation with other implementing parties. BLRPs will include an implementation schedule and effectiveness monitoring to assess the success of implementation actions. The requirements for submittal of BLRPs and other plans and schedules to implement the TMDL will take into consideration the need to develop and implement effective short-term solutions, as well as allow for the development and implementation of long-term solutions once additional data have been generated.

The BLRP shall contain the following elements in order to be deemed complete and approvable. Should an element not apply, the implementing party or parties should provide a brief explanation of its inapplicability.

A. Party Information and Legal Authority

1. The BLRP shall include the name of the implementing party or parties.
2. For a municipality, state, federal, or other public agency, the BLRP shall include the name of the duly authorized representative(s). A duly authorized representative is either a principal executive officer or ranking elected official, or a duly authorized representative of that person. A duly authorized representative is also a person who has responsibility for the overall operation of the subject facility or activity.
3. The BLRP shall include a map of the implementing party's or parties' jurisdictional boundary along with the receiving waters and sub-watershed boundaries that overlap the jurisdictional boundary to facilitate planning, assessment, and collaborative decision-making.
4. The BLRP shall include a demonstration that the implementing party or parties or duly authorized representative(s) possess the legal authority to implement the actions contained in the BLRP, such as through ordinances, service agreements, or other legally binding procedures.

B. Sources

1. The BLRP shall describe a protocol for identifying sources of fecal waste within the jurisdiction of the implementing party or parties and identify and characterize all the sources.
2. The locations of potential sources of fecal waste shall be identified on a map.
3. The BLRP shall describe a protocol for determining the potential for a given source to contribute to exceedances of the WLAs or LAs within the jurisdiction of the implementing party or parties and identify those sources with a reasonable potential, including the potential mechanism of discharge.

C. Description of Actions

1. The BLRP shall describe the specific pollution prevention actions (e.g., water conservation and waste minimization), management measures, or treatment facilities that are necessary to control the discharge of fecal waste under the jurisdiction of the party or parties, achieve the applicable WLAs and LAs for fecal indicator bacteria, and attain water quality standards.
2. The locations of the specific management measures and treatment facilities shall be identified on a map, where they are associated with physical locations. For example, it is appropriate to place the location of new restroom facilities on a map, but not a public outreach program.

3. If the BLRP is the result of collaboration among multiple implementing parties, the BLRP shall indicate which party is responsible for each of the actions.

D. Schedule

1. The BLRP shall include a schedule for implementing each of the actions and management measures identified in C.1. and constructing or upgrading each of the treatment facilities identified in C.1. The schedule shall be within the shortest time practicable.

E. Monitoring, Reporting, and Adaptive Management

1. The implementing party or parties shall submit periodic status reports updating the Regional Water Board on the status of its efforts to accomplish items B. and C. above and any other content as necessary. The BLRP shall describe the frequency of these periodic status reports.
2. The implementing party or parties shall submit a monitoring plan designed to evaluate the effectiveness of the identified actions, management measures, and treatment facilities at achieving the WLAs and LAs within the jurisdictional boundaries, and attaining water quality standards within the jurisdictional boundaries and downstream. The BLRP shall describe the metrics, methods, locations, and frequency of monitoring activities. Further, the BLRP shall describe the methods of data assessment and frequency of reporting to the Regional Water Board.
3. All water quality data collected to satisfy the BLRP shall be collected in accordance with a Quality Assurance and Project Plan developed per *Guidance for Quality Assurance Project Plans* EPA QA/G-5. Publication No. EPA/240/R-02/09 (U.S. EPA 2002c). Additionally, such data shall be uploaded by the implementing party or parties into the California Environmental Data Exchange Network.
4. The BLRP shall describe how the BLRP will be updated based on monitoring and performance assessments. It is expected that, in some cases, additional actions will be required if data from effectiveness monitoring shows exceedances of allocations. It is expected that the BLRP will be assessed and revised at least every 5 years.

B.2. Onsite Wastewater Treatment Systems

In accordance with the Basin Plan's *Onsite Wastewater System Requirements* (Basin Plan OWTS Policy), the geographic area of the Advanced Protection Management Program (APMP) includes the High Priority and Low Priority Areas described below. Areas within the Russian River Watershed that have not been designated as High or Low Priority by the Regional Water Board are not covered by the APMP. Owners of existing, new and replacement OWTS not covered under the APMP must still comply with requirements of the Basin Plan's OWTS Policy.

Based on the TMDL assessment, High and Low Priority Areas are identified below. The Regional Water Board, in consultation with the local agency, will further define and rank communities and other areas based on the threat to water quality from OWTS within these areas as new data become available.

High Priority Areas include:

- Areas with a high density of OWTS in the lower Russian River Watershed, including the communities of Jenner, Cazadero, Monte Rio, Camp Meeker, Guerneville, Rio Nido, Summer Home Park, Hacienda, Mirabel, and in the Middle Russian River Watershed, including Fitch Mountain near Healdsburg.

Low Priority Areas include:

- Areas with a high density of OWTS in the middle and upper Russian River Watershed, including Oakmont in East Santa Rosa, North Cloverdale, Talmage, and Redwood Valley;
- Areas where OWTS are within 600 linear feet in the horizontal (map) direction of the mainstem Russian River and the following tributaries of the Russian River in the middle and upper Russian River Watershed: Austin Creek, Big Sulphur Creek, Little Sulphur Creek, Commisky Creek, Dry Creek, Dutch Bill Creek, Feliz Creek, Fife Creek, Forsythe Creek, Franz Creek, Green Valley Creek, Laguna de Santa Rosa, Maacama Creek, Mark West Creek, Mill Creek, Pieta Creek, East Fork Russian River, Santa Rosa Creek, Sausal Creek, and York Creek.

B.2.1. Requirements for All OWTS in High Priority Areas
All existing, new, and replacement OWTS in High Priority Areas in the Russian River Watershed shall meet one of the following options:

Option 1: OWTS Meets Performance Standards for Pathogens

To ensure that any OWTS adequately disinfects domestic wastewater discharges, owners of OWTS shall employ supplemental treatment components for their OWTS. OWTS operating on the effective date of the TMDL shall meet this requirement within three years after the effective date of the TMDL or after subsequently being identified as a High Priority Area by the Regional Water Board or the local agency. OWTS using supplemental treatment components shall comply with following requirements:

1. Supplemental treatment components shall ensure effluent does not exceed a 30-day average of 30 mg/L of TSS and can achieve an effluent *E. coli* bacteria concentration of less than or equal to 100 MPN/100 mL and an effluent enterococci bacteria concentration of less than or equal to 30 MPN/ 100 mL.
2. The minimum soil depth and the minimum depth to the anticipated highest level of groundwater below the bottom of the effluent dispersal system shall not be less than three feet. All dispersal systems shall have at least twelve inches of soil cover.
3. Supplemental treatment components shall be designed to meet the applicable performance requirements above and shall be stamped or approved by a Qualified Professional, as defined in Section 1.0 of the Basin Plan's OWTS Policy.
4. Prior to the installation of any proprietary treatment OWTS installed to comply with the performance requirements above, all such treatment components shall be tested by an independent third party testing laboratory.
5. OWTS monitoring to demonstrate continuous compliance with the performance requirements above shall be in accordance with the operation and maintenance manual for the OWTS or more frequently as required by the local agency or Regional Water Board.
6. OWTS shall be equipped with a visual or audible alarm as well as a telemetric alarm that alerts the owner and service provider in the event of system malfunction. Where telemetry is not possible, the owner or owner's agent shall inspect the system at least monthly while the system is in use as directed and instructed by a service provider and notify the service provider not less than quarterly of the observed operating parameters of the OWTS. As defined in the Basin Plan's OWTS Policy, a service provider means a person who is capable of operating, monitoring, and maintaining an OWTS in accordance with the Basin Plan's OWTS Policy.
7. OWTS designed to meet the disinfection requirements shall be inspected for proper operation quarterly while the system is in use by a service provider unless a telemetric monitoring system is capable of continuously assessing the operation of the disinfection system. Testing of the effluent

from supplemental treatment components that perform disinfection shall be sampled at a point in the system after the treatment components and prior to the dispersal system and shall be conducted quarterly based on analysis of *E. coli* and enterococci bacteria with a minimum detection limit of 2.2 MPN. All effluent samples must include the geographic coordinates of the sample's location. Effluent samples shall be taken by a service provider and analyzed by a laboratory certified by the State Water Resources Control Board Division of Drinking Water.

8. Reporting of compliance with performance requirements and other pertinent information regarding the operation and maintenance of the OWTS shall be provided to the local agency or the Regional Water Board, as required.
9. New and replacement OWTS shall also comply with local agency requirements for new and replacement OWTS in a Local Agency Management Program (LAMP), or comply with Tier 1 requirements in the Basin Plan's OWTS Policy, as applicable.

Option 2: Connection to a Centralized Wastewater Collection and Treatment System

An owner of an OWTS will be considered to be in compliance with the TMDL if the owners (1) commit by way of a legal document within 4 years after the effective date of the TMDL or after subsequently being identified as a High Priority Area by the Regional Water Board or the local agency to connect to the sanitary sewer system of a permitted centralized wastewater collection and treatment system; and (2) the specified date for the connection to the centralized wastewater collection and treatment system does not extend beyond 10 years after the effective date of the TMDL.

Option 3: Permitting of the OWTS under a Local Agency Management Program (LAMP)

In an approved LAMP, a local agency may provide alternative methods to comply with the Fecal Waste Discharge Prohibition to owners of existing, new, and replacement OWTS. To account for local conditions and community preferences, the LAMP could include standards and requirements that differ from requirements in Option 1. However, in order to qualify for use as an alternative means of compliance with this TMDL, the approved LAMP must include the following elements, at a minimum:

1. Minimum standards for existing OWTS (e.g., site requirements, supplemental treatment requirements, etc.) specific to the High Priority Area;
2. A program to review existing, new and replacement OWTS to ensure that they are correctly sited, designed, installed, operated and maintained;
3. A plan for development of community-specific management plans;
4. A policy governing the repair or replacement of OWTS that ensures that the OWTS does not threaten public health or water quality;
5. Water quality monitoring and reporting; and
6. Time schedule to complete LAMP elements.

In addition, OWTS in High Priority Areas must be inspected and evaluated by a qualified professional to assess their performance. OWTS owners in High Priority Areas are required to obtain a third-party service provider to ensure proper operation and ongoing maintenance of OWTS through inspections performed at least annually.

Local agencies are required to submit their LAMPs for approval to the Regional Water Board no later than May 13, 2016, in accordance with Basin Plan's OWTS Policy. Regional Water Board staff is currently working with staff from Sonoma County and Mendocino County on the development of their LAMPs and anticipates the possibility of revising the LAMPs after the effective date of the TMDL to incorporate requirements and local programs designed to comply with the Russian River TMDL Action Plan.

B.2.2. Requirements for All OWTS in Low Priority Areas

All existing OWTS in Low Priority Areas in the Russian River Watershed are presumed to meet the requirements of the Conditional Waiver of Waste Discharge Requirements established in the Basin Plan's OWTS Policy. These OWTS shall be inspected within three years of the effective date of the TMDL to ascertain whether the OWTS is functioning properly. At a minimum, the OWTS must not require major repair, as defined in Section 1.0 of the Basin Plan's OWTS Policy, must not affect, or will not affect groundwater or surface water to a degree that makes it unfit for drinking or other uses, and must not cause a human health or other public nuisance condition. The minimum requirements for an inspection to satisfy this requirement are listed in section B.2.3 below and a qualified professional's report shall be submitted to the Regional Water Board.

For any existing OWTS that is found as a result of an inspection or report by a qualified professional to be not functioning properly to the extent that the OWTS requires major repair, or is affecting, or will affect groundwater or surface water to a degree that makes it unfit for drinking or other uses, or is causing a human health or other public nuisance condition, the owner of the OWTS shall be required to take corrective action in accordance with the Basin Plan's OWTS Policy. In addition, once corrective actions are completed, the owner of the existing OWTS shall obtain a service provider to ensure proper operation and ongoing maintenance of the OWTS system through annual inspections, at least initially and longer intervals, as appropriate.

For any existing OWTS found as a result of an inspection or report by a qualified professional to be functioning properly, not requiring major repair, not causing human health or nuisance conditions, and not affecting groundwater or surface water, shall be inspected at least once every five years thereafter, in accordance with section B.2.3., below.

Owners of new and replacement OWTS in Low Priority Areas shall comply with local agency requirements for new and replacement OWTS in a LAMP, or comply with Tier 1 requirements in the Basin Plan's OWTS Policy, as applicable. Owners of new OWTS in Low Priority Areas are required to obtain a third-party service provider within six months after commencing use of the OWTS to ensure proper operation and ongoing maintenance of OWTS. New OWTS shall be inspected at least every five years, in accordance with section B.2.3, below. Replacement OWTS in Low Priority Areas are required to obtain a third-party service provider prior to commencement of operation of the replacement OWTS to ensure proper operation and ongoing maintenance of OWTS through annual inspections, at least initially and longer intervals, as appropriate.

B.2.3. Minimum Requirements for OWTS Inspections

Where inspections of OWTS are required, owners of OWTS shall submit a qualified professional's report to the Regional Water Board (or County if applicable) that includes a determination of whether the OWTS is functioning properly and as designed or requires corrective action pursuant to Tier 4 of the Basin Plan OWTS Policy. The report shall include, but is not limited to, the following:

1. A general description of system components, their physical layout, and horizontal setback distances from property lines, buildings, wells, and surface waters.
2. A description of the type of wastewater discharged to the OWTS such as domestic, commercial, or industrial and classification of it as domestic wastewater or high-strength waste.
3. A determination of the systems design flow and the volume of wastewater discharged daily derived from water use, either estimated or actual if metered.

4. A description of the septic tank, including age, size, material of construction, internal and external condition, water level, scum layer thickness, depth of solids, and the results of a one-hour hydrostatic test.
5. A description of the distribution box, dosing siphon, or distribution pump, and if flow is being equally distributed throughout the dispersal system, as well as any evidence of solids carryover, clear water infiltration, or evidence of system backup.
6. A description of the dispersal system including signs of hydraulic failure, condition of surface vegetation over the dispersal system, level of ponding above the infiltrative surface within the dispersal system, other possible sources of hydraulic loading to the dispersal area, and depth of the seasonally high groundwater level.
7. A determination of whether the OWTS is discharging to the ground's surface.
8. A determination of the OWTS dispersal system's separation from its deepest most infiltrative surface to the highest seasonal groundwater level or fractured bedrock.

B.2.4. General Restrictions for All OWTS in the High Priority and Low Priority Areas
For new, replacement, and existing OWTS in High Priority and Low Priority Areas, the following are not authorized for OWTS in the Russian River Watershed, but may be authorized by a separate Regional Water Board order:

1. Cesspools of any kind or size.
2. OWTS receiving a projected flow over 10,000 gallons per day.
3. OWTS that utilize any form of effluent disposal on or above the ground surface.
4. Slopes greater than 30 percent without a slope stability report approved by a registered professional.
5. Decreased leaching area for International Association of Plumbing and Mechanical Officials (IAPMO) certified dispersal systems using a multiplier less than 0.70.
6. OWTS utilizing supplemental treatment without requirements for periodic monitoring or inspections.
7. OWTS dedicated to receiving significant amounts of wastes dumped from RV holding tanks.
8. Separation of the bottom of dispersal system to groundwater less than two feet, except for seepage pits, which shall not be less than 10 feet.
9. Minimum horizontal setbacks less than specified in section 10.6.9 of the OWTS Policy.

VI. Monitoring
Monitoring is conducted to provide information regarding the effectiveness of control efforts to 1) achieve WLAs and LAs, 2) attain the numeric targets, and 3) protect beneficial uses, over time. Monitoring activities include project monitoring, special studies, receiving water trend monitoring, and ambient monitoring of public recreational beaches during the summer recreation period. In collaboration with partners, the Regional Water Board is developing a regional monitoring program for the Russian River Watershed. As appropriate, parties responsible for implementation actions under this Pathogen TMDL Action Plan are encouraged to participate in the regional monitoring program, once it is developed. Individual monitoring requirements will be specified in the controlling regulatory mechanism developed for each of the bacteria source categories, as described in Table 1. A monitoring plan contained in a BLRP shall follow the Monitoring, Reporting, and Adaptive Management requirements for BLRPs specified in Section B.1.E above. In addition, the Executive Officer may require specific monitoring or special studies under separate order. All monitoring results will be reviewed and assessed periodically to inform potential revisions of individual permits, orders, BLRPs or other regulatory mechanisms or revisions to the Russian River Pathogen TMDL Action Plan, overall.

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DRAFT STAFF REPORT FOR THE ACTION PLAN FOR THE RUSSIAN RIVER WATERSHED PATHOGEN INDICATOR BACTERIA TOTAL MAXIMUM DAILY LOAD (August 21, 2015)

Table 1. TMDL Implementation Actions and Schedule for Reducing Delivery of Fecal Waste to the Russian River Watershed

Bacteria Source Category	**Implementing Parties (Source)**	**Implementation Actions**	**Compliance Date(s)**
Municipal Wastewater Discharges	City of Ukiah, City of Healdsburg, City of Santa Rosa, Occidental CSD	Municipal wastewater discharger shall comply with effluent limitations for fecal indicator bacteria and disinfection specifications in NPDES permit.	As specified in applicable NPDES permits
Wastewater Holding Pond Discharges to Surface Water	City of Ukiah, City of Healdsburg , Town of Windsor, City of Santa Rosa , Graton CSD, Forestville WD, Russian River CSD, Occidental CSD Other entities with storage pond discharges to surface water.	Storage pond dischargers shall submit demonstration that discharge does not contain human-source bacteria and pathogens, or submit a Bacterial Load Reduction Plan (BLRP) with time schedule of compliance with waste load allocations. The discharger shall comply with applicable NPDES permit requirements. The Regional Water Board shall update waste discharge requirements (WDRs) for those municipalities and special districts that do not demonstrate to the satisfaction of the Regional Water Board Executive Office that the holding pond effluent discharge does not contain human-source bacteria and pathogens. The WDRs shall include effluent limitations based on holding pond effluent sampling using the bacteriological results of holding pond effluent samples collected at least weekly for the calendar month for which analyses have been completed: 1. The geometric mean concentration of *E.coli* bacteria shall not exceed 100 MPN/ 100 mL, and 2. The Statistical Threshold Value (STV) for *E. coli* bacteria shall not exceed 320 MPN/ 100 mL. 3. The geometric mean concentration of *enterococci* bacteria shall not exceed 30 MPN/ 100 mL, and 4. The STV for *enterococci* bacteria shall not exceed 110 MPN/ 100 mL.	a) 18 months after the effective date of the TMDL to submit demonstration of compliance with WLAs b) Two years after the effective date of the TMDL to submit BLRP, and up to ten years after the effective date of the TMDL to comply with effluent limitations c) Four years after the effective date of the TMDL for Regional Water Board to update WDRs, if applicable

Bacteria Source Category	**Implementing Parties (Source)**	**Implementation Actions**	**Compliance Date(s)**
Percolation Pond and Irrigation Discharges	Calpella CWD, Hopland PUD, City of Cloverdale, Geyserville CSD, Airport-Larkfield-Wikiup SZ, Russian River CSD, Occidental CSD Other publically and privately-owned wastewater treatment facilities in the Russian River Watershed that collect, treat, and dispose of or recycle treated effluent to land via percolation ponds or by irrigation	The Regional Water Board shall update waste discharge requirements for percolation pond and irrigation discharges to include effluent limitations in which: 1. The geometric mean concentration of total coliform bacteria shall not exceed 23 MPN/100 mL in any calendar month. 2. The geometric mean concentration of enterococci bacteria shall not exceed 30 MPN/100 mL, and 3. The STV for *enterococci* bacteria shall not exceed 110 MPN/ 100 mL. The frequency of effluent monitoring for bacteria established in waste discharge requirements is at the discretion of the Regional Water Board, but shall be sufficient to demonstrate compliance with effluent limitations. Waste discharge requirements shall provide justification for the frequency of monitoring. Justification shall be based on factors such as discharge flow, proximity of the discharge to surfaces waters or other site conditions, effluent variability, and other factors, as appropriate. The discharger shall comply with the applicable WDR.	a) As specified in applicable WDRs b) As soon as practicable for Regional Water Board to update WDRs
Sanitary Sewer Systems	City of Ukiah, Ukiah SD, Calpella CWD, Hopland PUD, City of Cloverdale, Geyserville CSD, City of Healdsburg , Town of Windsor, Airport-Larkfield-Wikiup SZ, City of Santa Rosa , South Park CSD, City of Cotati, City of Sebastopol, Sonoma State University, Graton CSD,	Each municipality and district with a sanitary sewer system shall comply with State Water Resources Control Board Order No. 2006-0003-DWQ, Statewide General WDRs for Sanitary Sewer Systems, the revised Monitoring and Reporting Program Order No. WQ 2013-0058-EXEC, and subsequent revisions. Each municipality and district with a sanitary sewer system shall submit or update a Sanitary Sewer Management Plan (SSMP) that describes actions with	As specified in the applicable general WDR

Bacteria Source Category	**Implementing Parties (Source)**	**Implementation Actions**	**Compliance Date(s)**
	Forestville WD, Russian River CSD, Occidental CSD Other public entities that own or operate sanitary sewer systems	time schedules that it takes or plans to take to further minimize sanitary sewer overflows, spills, and exfiltration from its sanitary sewer system. The Regional Water Board will require submission of the SSMP amendment under authority of section 13267 subdivision (b) of the California Water Code.	
Land Application of Treated Municipal Sewage Sludge (Biosolids)	City of Santa Rosa Other public entity applying biosolids as a soil amendment	The discharger shall comply with State Water Resources Control Board Order No. 2004-0012-DWQ, General WDRs for the Discharge of Biosolids to Land, subsequent general orders, or individual waste discharge requirements.	a) As specified in an applicable general WDR b) One year after the effective date of the TMDL to submit (or update) and implement the Erosion Control Plan
		The discharger shall submit or update an Erosion Control Plan describing enhanced protections to prevent the movement of biosolids from the application area. The Regional Water Board will require submission of the Erosion Control Plan under authority of section 13267 subdivision (b) of the Water Code.	
Recycled Water Irrigation Runoff	Entities permitted to beneficially reuse treated domestic wastewater through irrigation to land	Each entity that is permitted to beneficially reuse treated wastewater for landscape irrigation, agricultural irrigation, or other use allowable under California Code of Regulations, title 22, chapter 3, article 3, section 60303 through 60307 shall maintain compliance with water recycling requirements in State Water Resources Control Board Order WQ 2014-0090-DWQ, General WDRs for Recycled Water Use, subsequent general orders, individual waste discharge requirements, or Master Water Reclamation Permits. Each municipality and district that is permitted to beneficially reuse treated wastewater shall develop (or update), submit, and implement a Non-Storm Water BMP Plan.	a) One year after the effective date of the TMDL to update and submit existing BMP Plan, or sooner if the entity to submit a Non-Storm Water BMP Plan in accordance with an existing Order. b) Two years after the effective date of the TMDL to develop and submit new BMP Plan, c) Final compliance within 5 years after the effective date of TMDL

Bacteria Source Category	**Implementing Parties (Source)**	**Implementation Actions**	**Compliance Date(s)**
		The Regional Water Board will require submission of the Non-Storm Water BMP Plan under authority of section 13267 subdivision (b) of the Water Code.	
Existing, New and Replacement Onsite Wastewater Treatment Systems ***(High Priority Areas)***	Owners of Onsite Wastewater Treatment Systems in High Priority Areas	Owners of Onsite Wastewater Treatment Systems in High Priority areas shall comply with the Advanced Protection Management Program established by this TMDL. For a complete description of the options and requirements of the Advanced Protection Management Program, see Section B.2.1. of the Basin Plan.	For a complete description of compliance dates, see Section B.2.1 of the Basin Plan.
Existing, New and Replacement Onsite Wastewater Treatment Systems ***(Low Priority Areas)***	Owners of Onsite Wastewater Treatment Systems in High Priority Areas	Owners of Onsite Wastewater Treatment Systems in Low Priority areas shall comply with the Advanced Protection Management Program established by this TMDL. For a complete description of the options and requirements of the Advanced Protection Management Program, see Section B.2.2. of the Basin Plan.	For a complete description of compliance dates, see Section B.2.2. of the Basin Plan.
Existing, New and Replacement Onsite Wastewater Treatment Systems ***(Non-Priority Areas)***	Owners of Onsite Wastewater Treatment Systems in High Priority Areas	Owners of Onsite Wastewater Treatment Systems in Low Priority areas shall comply with the requirements of the Basin Plan's OWTS Policy.	Compliance schedule shall be consistent with an approved LAMP or the Basin Plan's OWTS Policy.
Large Onsite Wastewater Treatment Systems	Owners and operators of all OWTS with projected flow greater than 10,000 gpd or owners of all OWTS with project flow greater than set forth in an approved LAMP	Owners and operators of Large Onsite Wastewater Treatment Systems shall submit a Report of Waste Discharge (ROWD) to the Regional Water Board. The Regional Water Board shall issue WDRs or Waivers of WDRs for the OWTS. For Owners of OWTS located in the geographic area of an Advanced Protection Management Program, the Regional Water Board shall include requirements in the Waiver or WDR that the OWTS Owner comply with supplemental treatment components for pathogens in accordance with requirements in sections 10.10.2 through 10.15 of the	a) For OWTS with projected flow of over 10,000 gpd, one year from the effective date of the TMDL to submit a ROWD b) For OWTS with projected flow greater than set forth in an approved LAMP, six months after approval of a LAMP for the local agency with jurisdiction over the OWTS

Bacteria Source Category	**Implementing Parties (Source)**	**Implementation Actions**	**Compliance Date(s)**
		Basin Plan's OWTS Policy. Supplemental treatment components shall ensure OWTS effluent does not exceed a 30-day average of 30 mg TSS/L, can achieve an effluent *E. coli* bacteria concentration of less than or equal to 100 MPN/100 mL, and can achieve an effluent enterococci bacteria concentration of less than or equal to 30 MPN/ 100 mL. As an alternative to installing supplemental treatment components for OWTS, owners of large OWTS in High Priority Areas can commit to connecting to a centralized wastewater collection and treatment system, in accordance with Option 2 in Section B.2.1.9 for individual OWTS.	
Other Onsite Wastewater Treatment Systems	OWTs not covered by the Conditional Waiver of the Basin Plan's OWTS Policy: Cesspools of any kind or size OWTS that utilize any form of effluent disposal on or above the ground surface, slopes greater than 30 percent without a slope stability report approved by a registered professional Decreased leaching area for International Association of Plumbing and Mechanical Officials (IAPMO) certified dispersal systems using a multiplier less than 0.70 OWTS utilizing supplemental treatment without requirements for periodic monitoring or	Owners of OWTS with conditions described here shall submit Report of Waste Discharge (ROWD) to the Regional Water Board. The Regional Water Board shall issue WDRs or Waivers of WDRs for the OWTS.	a) ROWD shall be submitted as soon as possible, but no later than 5 years after the effective date of the TMDL. b) As specified in applicable WDRs

Bacteria Source Category	**Implementing Parties (Source)**	**Implementation Actions**	**Compliance Date(s)**
	inspections OWTS dedicated to receiving significant amounts of wastes dumped from RV holding tanks Separation of the bottom of dispersal system to groundwater less than two feet, except for seepage pits, which shall not be less than 10 feet Minimum horizontal setbacks less than specified in section 10.6.9 of the Basin Plan's OWTS Policy		
Recreational Water Use	Sonoma County, Mendocino County, other landowner of a recreational beach	The County or landowner shall submit BLRP to control sources of bacteria. The Regional Water Board will require submission of the BLRP under authority of section 13267 subdivision (b) of the Water Code.	Two years from the effective date of the TMDL to submit a BLRP
Homeless and Farmworker Encampments and Illegal Camping	Sonoma County, Mendocino County, Municipalities, Sonoma-Marin Area Rail Transit (SMART) Other owners of land with homeless or farmworker encampments	The entity shall submit BLRP to control sources of bacteria. The Regional Water Board will require submission of the BLRP under authority of section 13267 subdivision (b) of the Water Code.	Two years from the effective date of the TMDL to submit a BLRP
Urban Runoff	Sonoma County, Sonoma County Water Agency, City of	The public entity shall comply with the applicable MS4 Permit	As specified in the applicable NPDES Permit

Bacteria Source Category	**Implementing Parties (Source)**	**Implementation Actions**	**Compliance Date(s)**
	Cloverdale, City of Cotati, City of Healdsburg, City of Rohnert Park, City of Santa Rosa, City of Sebastopol, City of Ukiah, Town of Windsor, County of Mendocino	The public entity shall submit BLRP to control sources of bacteria. The Regional Water Board will require submission of the BLRP under authority of section 13267 subdivision (b) of the Water Code.	Two years from the effective date of the TMDL to submit a BLRP
California Department of Transportation (Caltrans) Storm Water	Caltrans	The public entity shall comply with General Storm Water Permit (NPDES Permit No. CAS000003)	As specified in the applicable NPDES Permit
Non-dairy Livestock and Farm Animal Waste	Owners and operators of animal facilities, inclusive of animal husbandry, livestock production, other similar agriculture operations, and commercial animal boarding facilities	Owners and operators of animal facilities shall implement BMPs to properly contain and dispose of waste, and mitigate for potential water quality impacts resulting from surface runoff of animal waste and submit a report of waste discharge, as applicable.	Two years from the effective date of the TMDL to establish BMPs
Dairies and CAFOs	Owners and Operators of Cow Dairies and CAFOs	Owners and Operators of Cow Dairies and CAFOs shall comply with requirements set forth in the Conditional Waiver of Waste Discharge Requirements, the general WDR, an individual WDR, or NPDES permit, as applicable. If an enrollee is required to have a Waste Management Plan (WMP) and Nutrient Management Plan (NMP) or a Water Quality Plan (WQP) as a condition of the order, the WQP and NMP shall be updated to address sources of bacteria.	a) As specified in the applicable WDRs or Waiver of WDRs b) For Enrollees under the Conditional Waiver, one year from the effective date of the TMDL to update and implement the Water Quality Plan to address sources of bacteria c) For Enrollees under the general WDR or Permittees under an individual WDR, one year from the effective date of the TMDL to update and implement the Waste Management Plan for

Bacteria Source Category	**Implementing Parties (Source)**	**Implementation Actions**	**Compliance Date(s)**
			production areas (WMP) and/or Nutrient Management Plan (NMP)for manure to land application areas, as appropriate, to address sources of bacteria