

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

STAFF REPORT FOR REGULAR MEETING OF MAY 4-5, 2011
Prepared April 18, 2011

ITEM NUMBER: 20

SUBJECT: Consider the City of San Luis Obispo's Request for the Water Board to Remove the Municipal Beneficial Use Designation for San Luis Obispo Creek, San Luis Obispo County

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THIS ACTION: Provide Direction to Water Board Staff

Background:

The City of San Luis Obispo (City) is requesting the Regional Water Quality Control Board, Central Coast Region (Water Board), adopt a Basin Plan amendment to remove the municipal supply (MUN) beneficial use designation for San Luis Obispo (SLO) Creek. Removal of the MUN beneficial use for SLO Creek would eliminate the need to include effluent limitations in the permit for nitrate and for two California Toxics Rule (CTR) priority pollutants for the protection of the existing MUN beneficial use of SLO Creek. The City currently cannot meet effluent limitations based on these criteria without upgrading its treatment facility. The City's request, if approved by the Water Board, the State Water Resources Control Board, the Office of Administrative Law, and USEPA, would provide the City relief in two ways that would reduce costs associated with its discharge of municipal wastewater to the creek. The City would no longer be required to comply with water quality standards associated with protection of MUN. As a result the City would avoid the expense of potentially significant upgrades to the City's Water Reclamation Facility (WRF) and would avoid the payment of mandatory minimum penalties for certain potential effluent limitation violations. Attachment 1 contains information provided by the City in support of its request.

The City currently discharges tertiary treated wastewater to SLO Creek pursuant to Waste Discharge Requirements Order R3-2002-0043 (NPDES Permit). Although the City produces disinfected tertiary recycled water pursuant to California Code of Regulations (CCR) Title 22 for reuse and could virtually eliminate surface water discharges during the dry season, the City is required to discharge a minimum flow of 2.5 cubic feet per second (cfs) or approximately 1.6 million gallons per day of tertiary treated effluent to SLO Creek pursuant to the National Marine Fisheries Service June 1, 2001 biological opinion to support aquatic habitat for threatened steelhead. Consequently, SLO Creek is effluent dominated downstream of the City's WRF discharge during the dry season. The riparian and aquatic habitats downstream of the WRF discharge are of relatively high quality due in part to habitat restoration and conservation efforts by the City and Land Conservancy.

The City cannot comply with effluent limitations for two trihalomethanes (THMs), chlorodibromomethane and dichlorobromomethane, with its existing treatment facility. The effluent limitations for the THMs are based on CTR inland surface water human health water quality criteria for the consumption of water and aquatic organisms. It should be noted that even if the MUN beneficial use is removed for SLO Creek, the City could still be at risk of chronic THM effluent limitation violations based on the applicable CTR water quality criteria for the consumption of aquatic organisms, which is less stringent than the criteria to protect human health. However, that is a less expensive fix than complying with all MUN objectives.

On March 25, 2005, the Central Coast Water Board modified Order No. R3-2002-0043 to include, among other non-related changes, interim limits for the two THMs, a requirement for a THM reduction evaluation by November 1, 2005, and a five-year compliance schedule to meet the CTR-based effluent limitations for THMs by March 1, 2010. During the timeframe of the compliance schedule the City also evaluated various regulatory strategies with an emphasis on removing the MUN beneficial use.¹ The City submitted an infeasibility analysis and compliance schedule justification study requesting a new time schedule order on November 4, 2009, to protect it from THM effluent limitation violations when the compliance schedule within Order No. R3-2002-0043 expired. The study includes an analysis of THM data from 2002 through 2008, indicating the City's existing chlorine disinfection system will not achieve compliance with final effluent limitations. The City also conducted an evaluation of alternative disinfection processes to reduce the generation of THMs. Chlorine dioxide disinfection was chosen as the preferred alternative and follow-up studies indicated it would be effective in reducing effluent THM concentrations to below the final effluent limitations.

On March 30, 2010, the Executive Officer administratively adopted Time Schedule Order No. R3-2010-0013 (TSO), included as Attachment 2, which established a new set of interim effluent limitations for the two THMs and a compliance schedule, terminating on March 31, 2015, to meet the final effluent limits or otherwise get relief via a suitable regulatory strategy.

The San Luis Obispo Creek TMDL and Implementation Plan for Nitrate Nitrogen require the City to comply with a nitrate wasteload allocation, in the form of an effluent limitation, of 10 mg/L as nitrogen. This effluent limitation is based on the drinking water standard for nitrate and the MUN beneficial use of SLO Creek. When Water Board staff proposes a revised NPDES permit for the City, it would typically contain an effluent limitation for nitrate and a compliance schedule to meet the limitation by the implementation schedule specified within the TMDL. The City's WRF is currently only capable of nitrifying (conversion of ammonia to nitrate) and is not designed for denitrification (conversion of nitrate to elemental nitrogen gas). The City currently discharges effluent containing about 23.6 mg/L nitrate as nitrogen (NO₃-N) to SLO Creek and the City's relative contribution of nitrate-N loading to the SLO Creek watershed is approximately 72 percent (about 310,000 pounds of nitrogen per year as point source discharge to SLO Creek).^{2,3} Nitrate concentrations in SLO Creek upstream of the WRF discharge are very low, approaching non-detect levels, and support the MUN designation. According to the TMDL, agricultural sources (croplands) make up the remaining 28 percent of the loading within the watershed with very small contributions from other nonpoint sources. SLO Creek receives nearly all agricultural non-point source nitrate loading downstream of the WRF discharge.

Although potentially costly, a number of wastewater treatment technologies are currently available that are being successfully implemented to prevent the production of THMs and to facilitate nitrogen removal to the extent the City could meet effluent limitations based on the existing MUN beneficial use water quality criteria. The cities of Lompoc and San Juan Bautista currently implement ultraviolet (UV) disinfection and the California Men's Colony in San Luis Obispo County and South County

¹ The City submitted a Draft Use Attainability Analysis on September 1, 2006

² San Luis Obispo Creek Total Maximum Daily Load & Implementation Plan for Nitrate Nitrogen, San Luis Obispo County, CA, approved by USEPA on January 10, 2007

³ The City's treated effluent used to be deadly to fish in SLO Creek due to high ammonia concentrations. However, the Regional Water Board took enforcement actions and the City upgraded its Wastewater Treatment Facility nearly twenty years ago and greatly improved the quality of its discharge to San Luis Obispo Creek. The upgrades included: 1) a nitrification process, thereby eliminating toxicity from un-ionized ammonia discharges but creating more nitrate, 2) a de-chlorination process to reduce toxicity from chlorine discharges, 3) a cooling process to protect aquatic life, 4) a filtration process to improve water clarity, Effluent is no longer toxic for the fishery of San Luis Obispo Creek but has a high nitrate concentration.

Regional Wastewater Authority (SCRWA) near Gilroy are in the design or construction phases for UV disinfection systems to control THMs. The Carmel Area Wastewater District, SCRWA, and the cities of Hollister and San Juan Bautista all have wastewater treatment systems that achieve effluent total nitrogen concentrations below 10 mg/L or achieve nitrate concentrations below the drinking water standard while also complying with applicable effluent limitations for ammonia and toxicity. The City of Paso Robles is currently at the 100 percent design phase for a wastewater treatment facility upgrade that includes nitrogen removal to meet a total nitrogen effluent limitation of 10 mg/L and chloramination disinfection to control THMs. The conceptual design for the Los Osos wastewater facility also includes UV disinfection and nitrogen removal based on a pending total nitrogen effluent limitation of 7 mg/L.

Water Code section 13240 requires the Regional Boards to adopt water quality control plans (basin plans) that consist of designation of the past, present, and probable future uses of the water, water quality objectives to protect those uses, and implementation programs. Under the Water Code, the Regional Board may amend the basin plans to remove designated uses if it determines a use is not a past, present, or probable future use. In addition, the Regional Boards must comply with the Clean Water Act in considering whether to remove a designated use. The Clean Water Act allows removal of uses in certain circumstances if the use is not an existing use. "Existing uses" is defined as uses actually attained after 1975 (40 CFR 131.10.). The Regional Boards may designate sub-categories of uses or seasonal uses. Any removal or designation of a use must follow a public process, including notice, opportunity to comment, and a public hearing.

Discussion:

The City's rationale for removing the MUN beneficial use is based on information indicating that SLO Creek has not been used, is not being used, nor will it be used in the future as a source of municipal supply. The City also refers to letters from the San Luis Obispo County Health Agency and California Department of Public Health (CDPH) (contained within Attachment 1) indicating that they will not approve surface water diversions from SLO Creek for potable use because it is effluent dominated for most of the year. Water Board staff has not thoroughly reviewed this information, but the information regarding the historical and potential occurrence of surface water diversions for potable use appears accurate.

Water Board staff is also evaluating whether existing drinking water supply wells downstream of the City's discharge may be under the influence of recharge from SLO Creek. This information is necessary to determine whether the discharge from the facility could impact groundwater used for potable supply. The June 1, 2006 CDPH letter indicates the [regulated]⁴ water supply wells downstream of the City's discharge currently meet drinking water standards. The August 30, 2010 County Health letter states that it would not approve new drinking water supply wells shown to be under the direct influence of surface water downstream of the City's discharge. There is currently insufficient information to determine whether any of the existing downstream drinking water supply wells, currently regulated or not, are under the influence of surface water. However, hydrologic descriptions of lower SLO Creek and applicable portions of the San Luis Obispo Valley [Groundwater] Basin clearly indicate the aquifer, and wells, located downstream of the City's discharge are under the direct influence of surface water recharge from SLO Creek (i.e., the aquifer is a subterranean channel of the creek):

⁴ Consistent with CCR Title 22 requirements, CDPH and SLO County Health do not provide ongoing drinking water quality oversight for individual/domestic water supply wells or wells with two to four residential service connections (local or shared water supply systems). Testing for nitrate and other CCR Title 22 inorganic constituents is not generally required for individual wells and wells with two to four connections, is only required one time during the initial permitting process for State Small Water Supply Systems (five to fourteen service connections), and is required annually (minimum) for Public Water Supply Systems (with fifteen or more service connections).

“The ground-water system consists of a shallow and narrow alluvial aquifer that is in direct hydraulic communication with San Luis Obispo Creek. Most of the recharge to the aquifer occurs as leakage from the creek with lesser amounts from direct precipitation and subsurface flow. Discharge from the aquifer occurs primarily as discharge to the stream, ground-water pumping from wells, evapotranspiration from riparian vegetation (phreatophytes) and gravity drainage.”⁵

“Recharge to the basin comes primarily from seepage of surface flows in San Luis Obispo Creek and tributaries (including discharges from the City of San Luis Obispo Water Reclamation Facility), deep percolation of precipitation, and residential/agricultural return flows.”⁶

“Downstream of the Los Osos Valley fault, the San Luis Obispo Valley groundwater basin follows the alluvial deposits of San Luis Obispo Creek and tributaries to the ocean at Avila Beach. These alluvial deposits are typically less than 60 feet deep and are comprised of river gravel and sand beds overlain by floodplain silts and sands.”⁵

The fifth footnoted reference also indicates that groundwater occurs within deeper sedimentary and volcanic beds below the shallower “main groundwater bearing alluvial deposits,” but that it yields less water that is often under geothermal influences (hot springs not suitable for potable use) in areas of the basin downstream of the confluence of SLO and Davenport Creeks.

Information within the Water Board's files regarding the City's pursuit of removing the MUN beneficial use for SLO Creek indicates that only the San Miguelito Mutual Water Company (SMMWC) water supply system has been evaluated with regard to potential connectivity to SLO Creek. SMMWC is the largest water purveyor in the Avila Valley and provides public drinking water supplies to over 600 service connections primarily within San Luis Bay Estates. Although SMMWC also utilizes State Water,⁷ it relies primarily on the alluvial aquifer (Avila Valley Subbasin) for potable supply. Three SMMWC water supply wells are located between 150 and 200 feet from SLO Creek and are screened at depths of 22 to 31.5 feet below ground surface. The SMMWC wells are reportedly not impacted with nitrate or other constituents at levels exceeding applicable drinking water standards. However, well pumping test data and comparison of surface water (SLO Creek) and groundwater elevations in the SMMWC wells indicate the shallow SMMWC wells within the alluvial aquifer are in direct communication with SLO Creek.⁸ Attachment 3 contains written comments dated April 15, 2011 from SMMWC in response to the City's March 23, 2011 request to consider dedesignating SLO Creek for MUN.

A large portion of the developed areas located between San Luis Bay Drive and the Port of San Luis (harbor) that are not affiliated with SMMWC are located within or affiliated with County Service Area (CSA) No. 12 and receive state and/or county surface water via the San Luis Obispo County Lopez Project.⁹ However, there is one private facility (with public access), one water supply system, and a

⁵ Hydrology and Ground-Water Modeling of Lower San Luis Obispo Creek for the Water Reuse Project, Stetson Engineers, November 1994, Prepared for: The City of San Luis Obispo Utilities Department

⁶ March 2011 Draft San Luis Obispo County Master Water Plan; March 29, 2010, Wallace Group Technical Memorandum No. 2, regarding: Task C.3 Water Supply Inventory and Assessment-Description of Water Resources (<http://www.slocountywater.org/site/Frequent%20Downloads/Master%20Water%20Plan/index.htm>)

⁷ SMMWC has a State Water Project allocation of 275 acre-feet via San Luis Obispo County's Lopez Project. The Lopez [distribution] Line terminates at the Port of San Luis.

⁸ San Luis Bay Estate, Phase One Hydrogeologic Study, James M. Montgomery Consulting Engineers (JMM), Inc., January 1981.

⁹ CSA No. 12 acts as the contractual clearinghouse for Lopez and State Water within the Avila Valley. CSA No. 12 primarily encompasses the area bounded by Highway 101 to the east, San Luis Bay Drive to the north

number of individual residences located within the narrow SLO Creek valley not affiliated with either the SMMWC or CSA No. 12 that likely rely on the shallow alluvial aquifer for drinking water supply. Based on Water Board staff preliminary reconnaissance these include, but are not limited to: Per Bacco Cellars winery and tasting room, Bassi Ranch Development and a dozen or more individual residences located east of Highway 101 along Monte Road and north of San Luis Bay Drive along Ontario Road. In addition, a number of facilities within CSA No. 12 reportedly either utilize shallow wells to supplement potable supply or maintain them as backup sources of supply. Namely, Sycamore Mineral Springs, Avila Hot Springs Resort and the Avila Valley Mutual Water Company. Water Board staff has requested available data from the County Health Department regarding the number, location, depth and water quality of drinking water supply wells within the Avila Valley Subbasin. These data were not available at the time this report was written and staff will provide these data as they become available.

Available information clearly indicates connectivity exists between SLO Creek and the shallow alluvial aquifer currently utilized as a source of potable supply downstream of the City's WRF discharge. Therefore, dedesignation of the SLO Creek MUN beneficial use could result in a de facto dedesignation of the MUN beneficial use for groundwater within the alluvial aquifer.¹⁰ Even if the City was able to successfully argue that the surface water and groundwater MUN beneficial uses were mutually exclusive, or separate, regardless of whether connectivity exists, the groundwater recharge (GWR) beneficial use for SLO Creek would still govern the need to protect the underlying MUN beneficial use of the shallow alluvial aquifer. Consequently, the GWR beneficial use may also have to be removed to provide the relief the City is seeking. On the other hand, County Health has essentially already made that decision for any potential new wells by determining that it would not approve new drinking water supply wells shown to be under the direct influence of surface water downstream of the City's discharge.

As stated above, the SMMWC wells are reportedly not adversely affected by nitrate. Considering the consistently high nitrate content of the City's wastewater for nearly two decades, and the shallow nature of the alluvial aquifer, the above mentioned wells should conceivably have elevated nitrate concentrations if they are indeed pulling water recharged by the effluent dominated SLO Creek. This assumption neglects the potential occurrence of nutrient uptake by riparian vegetation within and adjacent to the stream channel, denitrification processes within the stream channel and alluvium, and the recharge of fresh water during the wet season from percolating rainfall and higher stream flows. Consequently, the analysis of other water quality parameters, not just nitrate, will likely be required along with modeling to definitively determine whether wells located within the Avila Valley Subbasin are under the influence of the City's WRF effluent.¹¹ In a March 16, 2009 letter to the City, Water Board staff indicated that a spatial and temporal evaluation of water quality parameters, isotopic analyses and modeling would be necessary to make a more definitive technical determination regarding hydraulic communication in support of the MUN dedesignation. The City has yet to conduct a more robust analysis. However, the City commissioned a nitrate ground water

and west, and the Pacific Ocean to the South. A number of individual residences are affiliated with CSA No. 12 in addition to the following facilities/entities: Bellevue Santa Fe Elementary School (San Luis Coastal USD), Avila Valley Barn, Ocean Canyon Resort, Salisbury Winery tasting facility, San Luis Obispo Buddhist Church, Jehovah's Witness Kingdom Hall, PG&E Diablo Canyon Visitors Center and Bassi Ranch House, Avila Hot Springs Resort, Gardens of Avila restaurant and hot springs resort (Sycamore Mineral Springs), Avila Valley Mutual Water Company (serving residences on Avila Valley Drive), SMMWC, Avila Beach CSD and the Port of San Luis.

¹⁰ The State Water Resources Control Board Division of Water Rights has determined that groundwater pumping from an alluvial aquifer in communication with surface water constitutes a diversion of surface water (WR Order 95-10 for the Carmel River).

¹¹ Modeling results contained within the referenced 1994 Stetson Engineers report (ref. no. 5) indicate aquifer water levels would decrease by up to 12 feet due to surface water diversions and groundwater pumping during a series of dry years without the City's WRF discharge.

effects study in 2004 that documents nitrate impacts (up to 8.4 mg/L NO₃-N in an agricultural supply well) in wells downgradient of the WRF discharge.¹² The study was primarily focused on the testing of wells within relatively close proximity to the WRF discharge, most of which are likely also subject to agricultural return flows (recharge) containing nitrate.

The current Basin Plan nitrate criterion is set to protect drinking water for human health purposes. This value is typically considered under protective for aquatic life beneficial uses. For example, a recently published USGS study conducted in the western states identifies a biologically relevant total nitrogen threshold range of between 0.59 and 1.79 mg/L (Black et al., 2010). Water Board staff has used the California Nutrient Numeric Endpoints approach, along with other direct measures of eutrophication, to assess waters for impairment associated with biostimulation. Staff estimates that 1 mg/L NO₃-N is necessary to protect aquatic life beneficial uses from biostimulation (Worcester, et al., 2010). Staff used this criterion in high priority waters, along with other evidence of eutrophication, to evaluate surface water quality impairment to aquatic life for the 2010 Clean Water Act 303(d)/305(b) Integrated Assessment. Measures of eutrophication (algal density, dissolved oxygen, pH) and other factors that affect eutrophication (e.g., flow rate, shading) will need to be evaluated in SLO Creek to determine a nitrate concentration that is protective of aquatic life for the stretch of SLO Creek below the City's discharge. While the appropriate concentration to protect aquatic habitat from excessive biostimulation is currently unknown, it is very possible that the eventual concentration will be less than the MUN related number of 10 mg/L NO₃-N. That lower number would become the driver and target for any City wastewater treatment plant improvements regarding nitrogen. Consequently, an appropriate course of action would be to first determine the biostimulation concentration, and if it is lower than the MUN concentration, this entire MUN designation question becomes moot.

An additional regulatory strategy that has been considered for both THMs and nitrate is the development of site specific objectives (SSO).¹³ Initial evaluations by the City indicate an SSO would not be feasible and/or appropriate for nitrate and infeasible for THMs unless it was based on a site-specific water objective (versus revised objective for the organism consumption component of the governing CTR criteria).

Although they should not be the primary basis for the decision whether to pursue removal of beneficial uses, there are some additional underlying considerations.

1. Even if both the Regional and State Water Boards were to approve a MUN dedesignation, USEPA approval is not guaranteed. In fact, USEPA approval appears to be unlikely.¹⁴ During a number of informal discussions between USEPA Standards Unit and Water Board staff, USEPA staff has indicated that the bar for any future UAAs and removal of beneficial uses is very high. Removal of MUN beneficial uses would likely be subject to the highest level of scrutiny, particularly for the lower third of a main stem stream of a watershed that is listed for nutrient

¹² City of San Luis Obispo Water Reclamation Facility Nitrate Groundwater Effects Study (FINAL), November 30, 2004, Larry Walker Associates, Inc.

¹³ Section 5.2 (Site-Specific Objectives) of the SWRCB Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (aka State Implementation Policy for the California Toxics Rule or SIP) states, "A RWQCB may develop site-specific objectives whenever it determines, in the exercise of its professional judgment, that it is appropriate to do so." Although the allowance of and methodology for developing SSOs is for priority pollutants (California Toxics Rule), the methodology could conceivably be used for developing an SSO for nitrate in SLO Creek.

¹⁴ In its November 17, 2010 letter to the State Water Board approving the Soquel Watershed TMDLs, EPA indicated [it] "is not taking action" "on the State's intention to remove the shellfish harvesting (SHELL) beneficial use,..."

impairments with an approved TMDL that is based on the MUN criteria for nitrate.¹⁵ Other dischargers might be prompted to claim their receiving water's MUN designation is inappropriate as well. However, the SLO Creek situation is the only case in the Central Coast Region where both the state and local health departments have indicated the water is unsuitable for drinking water supply (due to an effluent dominated stream).

2. Another consideration is the amount of staff resources that would be required to complete a use attainability analysis, prepare the Basin Plan amendment, and shepherd the amendment through Central Coast Water Board, State Water Board, the Office of Administrative Law, and USEPA approvals. The workload would be significant, and in staff's view, does not align with higher priority, water-quality improvement work that staff would otherwise be doing. However, the staff time would be minimal compared to the costs that are in the balance for the City.¹⁶ City staff indicate they understand this conflict and the City has offered to provide financial or other assistance to the Water Board for doing this work. Such assistance for Basin Plan Amendments has been used in other regions (e.g., groundwater salinity management plan for the Santa Ana Regional Water Board). This assistance would have to be provided in a manner that assures unbiased results. This Water Board has used discharger assistance several times (e.g., funding by power utilities of Water Board controlled escrow accounts for power plant cooling water analyses). However, even with such assistance, staff time would be significant.
3. Additional treatment to denitrify will not only be costly for capital expenditures but will require additional ongoing operations and maintenance costs for the life of the requirement (indefinite). These include potentially significant increases in energy consumption that would in turn increase the WRF's associated carbon footprint. According to AB 32, the climate change law, state agencies are to consider this factor in decision making.

Next Steps

The following outlines potential approaches with associated tasks and endpoints: [1] (see Approach Notes below for bracketed number)

Approach 1: Pursue MUN (and possibly GWR) dedesignation to provide relief from the pending MUN THM and nitrate criteria. [2] [3]

Steps:

1. Conduct spatial and temporal evaluation of water quality parameters, isotopic analyses and modeling for surface water and groundwater (including wells utilized for potable supply) downstream of the WRF discharge [4]
2. If downstream wells used for potable supply are not shown to be under the influence WRF effluent (not just for nitrate), proceed with MUN dedesignation [4]
3. If downstream wells used for potable supply are shown to be under the influence WRF effluent (not just for nitrate), do not proceed with MUN dedesignation and proceed to alternative approach

¹⁵ The Clean Water Act Section 303(d) listing rationale was, "Exceeds Basin Plan drinking water objective, exceeds Basin Plan narrative biostimulatory objective." However, in the absence of a defensible biostimulatory impacts assessment and applicable criteria (water quality objectives) to develop appropriate wasteload allocations protective of the narrative biostimulatory objective, the resulting TMDL was only written to address the MUN exceedances. As noted in this staff report, an evaluation of the biostimulatory impairment and appropriate endpoint(s) are pending addition studies.

¹⁶ According to City estimates, approximate initial capital costs are \$19.5 million for nitrate removal and \$3.1 million for THM control (above and beyond \$45 million in scheduled upgrades). These estimates do not include financing costs over the 20 year life of the project which are generally 50 percent of the initial capital costs and operating costs which could be in the hundreds of thousands of dollars per year.

Approach 2: Upgrade WRF disinfection system to meet final THM effluent limitations pursuant to TSO No. R3-2010-0013 and provide interim relief to the City from the MUN nitrate criteria while evaluating the biostimulatory nutrient criteria for revision of the TMDL and City permit.

Steps:

1. Implement WRF disinfection system upgrades pursuant to TSO No. R3-2010-0013 time schedule
2. Determine Nutrient Numeric Endpoint (NNE) for SLO Creek [4] and update/revise TMDL [5]
3. If NNE is less than 10 mg/L NO₃-N, proceed with permit revision including NNE and time schedule for City WRF upgrade to meet NNE based effluent limitation
4. If NNE is higher than 10 mg/L NO₃-N, either proceed with WRF upgrade to meet the MUN nitrate criteria, or pursue MUN dedesignation (Approach 1) or other regulatory strategy such as site specific objective

Approach 3: Develop site-specific objectives (SSOs) pursuant to Section 5.2 of the State Implementation Policy for THMs and/or nitrate¹⁷

Steps:

1. Evaluate feasibility of developing SSOs for THMs and/or nitrate [4]
2. If SSOs are feasible for either THMs or nitrate, develop them in accordance with Section 5.2 of the SIP [4]
3. Revise WRF permit to include SSO(s) [5]
4. If SSOs are not feasible for either THMs or nitrate proceed to alternative approach

Approach 4: Upgrade WRF disinfection system to meet final THM effluent limitations pursuant to TSO No. R3-2010-0013 and the nitrate criteria pursuant to the MUN beneficial use and TMDL.

Steps:

1. Implement WRF disinfection system upgrades pursuant to TSO No. R3-2010-0013 time schedule.
2. Revise WRF permit to include interim and final based nitrate effluent limitations based on the MUN beneficial use and TMDL and a time schedule to comply with new limits [5]
3. Implement WRF upgrades to comply with pending MUN based nitrate effluent limitation

Approach Notes:

- [1] Development and implementation of regulatory strategies (i.e. removal of MUN beneficial use, site specific objectives, etc.) or WRF upgrades to address THMs would need to be consistent with compliance schedule spelled out in TSO No. R3-2010-0013
- [2] Would still require compliance with pending biostimulatory based nutrient endpoints/criteria
- [3] If the SWRCB, OAL or USEPA do not approve the MUN dedesignation and associated UAA, the City will still be required to meet the pending THM and nitrate effluent limitations
- [4] To be conducted by City hired contractor, with oversight by Water Board staff
- [5] To be conducted by Water Board Staff

While various steps within these potential approaches make sense from a technical standpoint and are allowable within the existing regulatory framework, they are subject to potential hurdles and pitfalls. For example, although not specifically implied within the State Implementation Policy, the development and application of SSOs would likely be subject to SWRCB and USEPA review and

¹⁷ Note: preliminary evaluation of developing SSO for nitrate by the City indicates this regulatory strategy is likely infeasible and/or not appropriate.

approval given they would not be consistent with existing standards (i.e., Basin Plan objectives, CTR and TMDL wasteload allocations). In addition, much like pursuing removal of beneficial uses via a Basin Plan amendment, the governing conditions to determine if an SSO is appropriate and the process to develop one are based on high technical standards that are subject to interpretation. There is also the potential for third party liability and the petition of related Water Board action or inaction. These potential hurdles and pitfalls would likely be minimized through collaboration and agreement between applicable stakeholders during every step of the chosen process/approach. To date, Water Board staff have worked closely with City staff to discuss and evaluate potential options. Staff remains committed to working with City to address these issues, but recommends the collaborative forum be expanded to address this watershed level issue by including regulatory and local stakeholders via a series of regular meetings and group discussions. Although the Water Board and City staff have individually engaged with various agencies such as CDPH, County Health, USEPA, etc. and local stakeholders such as SMMWC and the Land Conservancy, a stakeholder forum and/or task force lead by the City may be appropriate to better define and implement an appropriate course of action.

Conclusion and Recommendation:

Although the City's request is singularly focused on pursuing the removal of the MUN beneficial use for SLO Creek to address both the THM and nitrate issue, the nitrate component appears to be the governing factor based on the considerable anticipated costs to upgrade the facility (\$19.5 million) and whether it is appropriate to require the City to meet effluent limitations for nitrate based on the drinking water standard, given the effluent dominated SLO Creek is not being utilized, nor is it suitable, for potable supply. This issue is further complicated by the pending application of a biostimulatory based effluent limitation for nitrate and the potential connectivity between surface water and groundwater, the latter of which is currently utilized for potable supply. The above comprises what Water Board staff sees as the primary issue for Water Board consideration. The secondary issue regards the application of the final THM effluent limitations and how that relates to the MUN beneficial use. Based on this conceptualization of the issues at play, staff have tried to lay out potential approaches that address the THM and nitrate issues both singularly and independently. However, there appears to be no straightforward approach that is not without its potential hurdles and pitfalls.

Given staff understands and agrees with the City's dilemma regarding the appropriateness and sustainability of applying MUN based standards to an effluent dominated stream, consideration is warranted to provide some form of relief to the City. However, staff does not think pursuing MUN dedesignation is an appropriate strategy at this time given 1) a high level of uncertainty regarding the connectivity of downstream surface and groundwater, 2) pending biostimulatory determination that may result in an effluent limitation for nitrate that is lower than the MUN based limitation, and 3) a high level of uncertainty regarding whether a MUN dedesignation and associated UAA will pass muster at the SWRCB, OAL or USEPA level. Consequently, staff feels that interim relief from the MUN based nitrate standard should be considered until items 1) and 2) above are sufficiently addressed. How to provide this relief requires an additional discussion and evaluation of applicable alternatives not included as part of this staff report. With this said, the City is likely to be uncomfortable with the high level of uncertainty associated with the potential outcomes relating to the nitrate issue given they all come at considerable staff effort and cost and require parallel planning and funding efforts.

Although related to the MUN beneficial use, staff is generally considering the THM issue separately from the nitrate issue because 1) the driver for the final effluent limitations is based on the CTR, 2)

the City has shown that it can meet the pending limits through “reasonable treatment”¹⁸ at considerably less costs as compared to denitrification process upgrades, 3) the City is currently shielded from the pending limits via a second compliance schedule, and 3) the City is anticipating future upgrades to its aging disinfection system.

Based on the above discussion, Water Board staff recommends denial of the City’s request that the Water Board direct staff to develop a Basin Plan amendment removing the MUN designation at this time. Instead, staff recommends the Water Board direct staff and the City to pursue Approach 2, or variation thereof, that provides interim relief to the City from the pending MUN based nitrate limitation while additional studies are conducted to develop an appropriate biostimulatory objective and, optionally, evaluate the surface water and groundwater connectivity issue if the City wishes to maintain the option of pursuing a MUN dedesignation for SLO Creek. Approach 2 also suggests the City upgrade the WRF disinfection system to meet the final effluent limitations, but the existing TSO still provides for a compliance schedule to implement a regulatory strategy such as an SSO. As such, the City could continue to evaluate and pursue an SSO for THMs even though it may prove infeasible and put the City at risk of administrative civil liability for failure to meet the prescribed time schedule within TSO No. R3-2010-0013 and/or mandatory minimum penalties for violation of the final THM effluent limitations.

Attachments:

1. March 23, 2011, City of San Luis Obispo Summary of San Luis Obispo Creek MUN Use Dedesignation for May 5, 2011, Regional Board Agenda
2. March 30, 2010, Time Schedule Order (TSO) No. R3-2010-0013, Requiring the City of San Luis Obispo Water Reclamation Facility to Comply with Requirements Prescribed in Order No. R3-2002-0043
3. April 15, 2011, San Luis Obispo Creek MUN Use Dedesignation, San Miguelito Mutual Water Company

¹⁸ Section 5.2 (Site Specific Objectives) of the SIP indicates the RWQCB shall consider initiating the development of a site-specific objective under a set of conditions that includes: “(3) A demonstration that the discharger cannot be assured of achieving the criterion or objective and/or effluent limitation through reasonable treatment, source control, and pollution prevention measures.”