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Comments— Tentative WDRs and NPDES Permit for City of Mt. Shasta and U.S. Department of Agriculture, Forest Service, Mt. Shasta Wastewater Treatment Plant, Siskiyou County

This letter presents my comments on and recommendations for the subject tentative order issued 6 February 2023. I am a California registered civil engineer and worked in the Central Valley Regional Water Quality Control Board's Fresno office (1998-2010), mostly in the WDR Program.

The tentative order describes the City of Mount Shasta's extensive upgrades to its wastewater treatment plant (WWTP) that began in 2013 and should be completed within months. WWTP Effluent is discharged to the City's outfall pipeline to the Sacramento River (DIS-001) or to a 42-acre leachfield (DIS-002) located on federally-owned land under the jurisdiction of the US Department of Agriculture, Forest Service. It is also recycled on a nearby golf course (DIS-003) owned by Siskiyou Lake Golf Resort, Inc.

The description of wastewater and biosolids treatment and controls provided in the Fact Sheet (II.A) pertains exclusively the Existing WWTP, even though the Upgraded WWTP (aka Future WWTP) will be completed soon.

Please consider revising the Fact Sheet's FACILITY DESCRIPTION (especially II.A) to describe the Upgraded WWTP, including its sludge treatment train. Identify size and depth of the Emergency Retention Basin depicted in the flow schematic (Attachment C-2) and indicate whether it is equipped with a liner.

The Existing and soon-to-be obsolete WWTP features oxidation lagoons (aka aeration ponds), dissolved air flotation thickener (DAFT) and rapid sand filtration, and chlorine disinfection and dechlorination treatment. The Existing WWTP's flow schematic (Attachment C-1) is difficult or, in places, impossible to read because of poor reproduction quality. It depicts, in part, three aeration ponds operated in series that discharge to two aeration ponds operated in parallel that, in turn, discharge to a "BASIN" (label illegible) that discharges to the sand filters or the DAFT and rapid sand filter treatment train. Filter backwash water and DAFT scum and solids are routed to the first-stage aeration pond. DAFT scum and solids can also be discharged to the "sand drying bed." According to the Fact Sheet (II.A), sludge accumulates in the aeration ponds. The tentative order does not

describe how infrequently the City removes pond sludge to ensure optimal pond operation, or its sludge removal and disposal practices.

The tentative order does not provide a site map for the Existing WWTP depicting the locations of the aeration ponds, sand filters, storm water basin, etc. It does not provide information regarding the size of the aeration ponds, their depth, and containment (if any). From Google Earth imagery, it appears that only the first two aeration ponds are equipped with aeration. The six ponds together encompass about 13 acres.

If the aeration ponds are not lined, they are a de facto discharge point to groundwater – a 13-acre concentrated source of waste constituents that, unless attenuated in the soil profile, threaten to cause groundwater to exceed water quality objectives (e.g., for nitrate, iron, manganese, and arsenic).

For some reason, the current and previous orders for this discharge have overlooked the threat posed to groundwater from the City's use of ponds for wastewater treatment. Rather, these orders have restricted consideration the WWTP's groundwater impacts to the leachfield discharge of high-quality municipal effluent. To this end, the tentative order more-or-less carries over the groundwater monitoring requirements for the leachfield discharge established by the current order (R5-2017-0117), and briefly describes this somewhat quixotic effort as being plagued by the difficulty of locating an upgradient well.

In a 16 December 2015 staff letter to the City commenting on its mitigated negative declaration and initial study for its WWTP upgrade project, staff recaps the City's options for decommissioning the WWTP's treatment ponds: "(1) abandon and allow to be naturally inundated by rain and snowmelt or (2) be supplemented with treated effluent." The letter advises the City that the WWTP is "currently not permitted for long-term storage of… sludge… likely to have accumulated as a result of existing treatment lagoon processes." It further advises that the pond sludge would "need to be removed if the [City] elected to pursue either option…." Additionally, staff advises that the WWTP is "currently not permitted for land discharges of treated effluent to evaporation/percolation ponds," and that the City would have to submit a report of waste discharge pursuant to California Water Code section 13260 prior commencing such a discharge.

The threat to groundwater posed by the City's past operation of these ponds, should they be unlined, likely far exceeds that posed by its leachfield discharge. The tentative order should require the City to expand its groundwater monitoring well network to include at least three wells around the perimeter of the ponds, and one background well (if possible). Monitoring of groundwater potentially affected by pond operation is necessary to evaluate whether groundwater limitations have already been exceeded and if cleanup and abatement measures are necessary to address unreasonable degradation and potentially pollution. It will also provide information necessary for the City to evaluate proposals under consideration to convert the aeration ponds to effluent disposal ponds, as described in a 16 December 2015 staff letter mention above.

Please consider including a site map of the Existing WWTP that identifies the aeration ponds, sand filters, and other treatment units and operations.

If available, replace Attachment C with a more legible version of the Existing WWTP flow schematic.

Confirm that DAFT scum and solids can be discharged to the sand filters (sand drying bed?). If so, identify the reasons for and frequencies of this discharge and explain why it shouldn't be viewed as treatment bypass.

Include in the Fact Sheet (in FACILITY DESCRIPTION or elsewhere) a description of the two options the City is considering for the soon-to-be former aeration ponds. Explain that the City is not authorized to store sludge in the ponds or elsewhere onsite for long periods and that, eventually, the ponds will need to be dewatered and their sludge removed (along with affected soils, as appropriate). Refer to and explain the need for an additional "Other Special Provision" to require the City to address this issue in a timely fashion. The following language for such an "Other Special Provision" is adapted from recently-adopted WDRs for the City of Farmersville Wastewater Treatment Facility (R5-2022-0026):

***Aeration Pond Decommissioning**. **By six months,** the Discharger shall submit an **Aeration Pond Cleanout Work Plan** proposing how the Discharger will remove organic material and sediment from the former aeration ponds. The work plan shall provide a timeline not to exceed four years for the following:*

1. *Removing the organic material/sediment, including what methods will be used to remove solids and discuss how deep the ponds will be excavated;*

2. *Collecting representative soil samples from each pond to a depth of at least ten feet (in two-foot depth intervals) to ensure all organic material and sediment has been removed from ponds; and*

3. *Submitting a technical report containing an evaluation, based on soil sample results, that demonstrates the former ponds no longer pose a threat to underlying groundwater quality.*

The work plan shall propose analyzing soil samples for total organic carbon, nitrate, TKN, total nitrogen, and metals (metals listed in Title 22). The work plan should also discuss where excavated solids will be hauled to and what the Discharger intends to do with the former aeration ponds

***By five years**, the Discharger shall complete the pond decommission work and submit written certification that the work has been completed as proposed.*

The tentative order does not describe the City's storm water management practices. Because the WWTP's permitted discharge flow is less than 1 MGD, its offsite storm water discharges are apparently not subject to federal regulation. The onsite disposal of storm water in unlined retention basins is, nevertheless, a discharge of waste to land subject to requirements for vector nuisance prevention, at a minimum. Google Earth imagery depicts a 0.3-acre pond nearby the chlorination basin that is likely a storm water retention basin. Historic imagery frequently depicts the basin containing water, often green, with mosquito-friendly vegetative growth around and intruding into the basin.

Please consider including a Construction, Operation, and Maintenance Specification for storm water basins:

d. ***Storm Water Retention Operating Requirements***. *Storm water retention basins shall be managed to prevent breeding of mosquitos. In particular*

   i. *An erosion control program shall be implemented to ensure that small coves and irregularities are not created around the perimeter of the water surface.*

   ii. *Weeds shall be minimized through control of water depth, harvesting, or herbicides.*

   iii. *Dead algae, vegetation, and debris shall not accumulate on the water surface.*

Like most of the Region's NPDES permits for municipal dischargers with a land discharge component and groundwater monitoring requirements, the tentative order does not even attempt to characterize regional groundwater potentially affected by the WWTP operation and its leachfield discharge. Even though groundwater monitoring has been conducted around the leachfield since 2006, the tentative order does not even attempt to provide a summary and analysis of groundwater data collected over the permit cycle for compliance with groundwater limitations. It is difficult not to consider this seemingly common omission verging on dereliction of duty by NPDES staff (sorry, but it's true).

Please revise the tentative order to describe the current groundwater conditions at the leachfield, and to present a summary and analysis of the data for compliance with groundwater limitations. The level of detail provided should be comparable to findings for Groundwater and Subsurface Conditions contained in "Non-15 Program" WDRs Orders.

Thank you for your time and consideration.

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