Central Valley Regional Water Quality Control Board
7/8 April 2011 Board Meeting

Prosecution Team's Response to Comments
for the
City of Ione
Wastewater Treatment Facility
Amador County

Tentative Cease and Desist Order

The following are the Central Valley Regional Water Quality Control Board ("Central Valley Water Board") Prosecution Team responses to comments submitted by interested parties regarding the tentative Cease and Desist Order for the City of Ione Wastewater Treatment Facility. Public comments regarding the proposed Order were required to be submitted to the Central Valley Water Board by 14 February 2011; comments submitted after this deadline may only be accepted into the administrative record by the Board Chair, and will not be accepted into the administrative record if doing so would prejudice any party.

The Central Valley Water Board received written comments regarding the proposed Order by the due date from the following parties:

- The City of Ione ("City")

CITY OF IONE COMMENTS

City Comment No. 1 It is unclear to what extent the facility is causing groundwater degradation

RESPONSE: The City has presented several theories for the cause of elevated iron and manganese concentrations in downgradient groundwater wells. Only one of those theories was substantiated with scientific evidence: anoxic reducing conditions caused by the presence of degradable organic matter in the treatment ponds accelerates the mobilization of metals from sediment to groundwater. Based on results of oxidation-reduction monitoring between 2008 and 2010, the City's consultant observed that reducing conditions are present in downgradient groundwater monitoring wells[1], and stated that the reducing conditions are likely the result of the percolation of oxygen-depleted water from the treatment ponds to the groundwater. The Prosecution Team concurs with this evaluation of the cause of groundwater degradation from iron and manganese. No revisions were made to address this comment.

City Comment No. 2 The source of the reducing conditions that cause elevated concentrations of iron and manganese in groundwater downgradient of the wastewater treatment facility could be natural due to the presence of peat in the subsurface.

[1] Fourth quarter 2009 Groundwater Monitoring Report.

RESPONSE: The City has previously reported to Board staff that iron and manganese occur naturally in the Ione formation and that reducing conditions in groundwater can be caused by decaying natural organic matter below the ground surface, such as peat. However, the City has not provided any evidence that peat is present in the geologic formation beneath the wastewater treatment facility. In addition, the iron and manganese concentrations are 260 to 700 times higher in the downgradient monitoring wells than the background wells. This suggests that something other than natural soil conditions is responsible for the reducing conditions. No revisions were made to address this comment.

City Comment No. 3 As described in the Antidegradation Analysis included in the City's March 2010 Report of Waste Discharge, the proposed upgrades to tertiary treatment in impervious tanks instead of unlined ponds will reduce any iron and manganese groundwater degradation that is attributable to the effluent.

RESPONSE: No revisions were made to address this comment. The Antidegradation Analysis provided in the recent Report of Waste Discharge states that the proposed treatment system will produce an effluent with a biochemical oxygen demand (BOD) concentration averaging 10 mg/L and that the effluent will be filtered, thereby reducing "…effluent concentrations of … precipitated chemicals like iron and manganese." The analysis notes that there is no monitoring data for dissolved iron and manganese in the effluent.

There is no reason to believe that the known groundwater degradation from iron and manganese is attributable to the presence of these constituents in the treated effluent. In fact, this is highly unlikely, given the high quality of the City's water supply and the lack of industrial dischargers in the City. As noted in other technical reports submitted by the City, the most likely reason for the degradation is that degradable organic matter from the unlined treatment and percolation/evaporation ponds has depleted oxygen in the saturated zone beneath the ponds. The lack of oxygen creates reducing conditions that convert the iron and manganese that are naturally present within the soil to dissolved forms, thereby releasing iron and manganese into the groundwater.

The Prosecution Team agrees that the proposed facility improvements could mitigate the reducing conditions that have cause the degradation by iron and manganese over time by preventing percolation from the treatment ponds (where BOD concentrations are highest) and by reducing the BOD of the treated effluent from the current concentration. However, the discharge has caused iron and manganese in groundwater to exceed background concentrations by a factor of 260 for iron and 700 for manganese, and to exceed promulgated maximum contaminant levels (MCLs) by a factor of 10 for iron and 100 for manganese, which is in violation of the State Water Board's Antidegradation Policy. The discharger must positively demonstrate that the proposed improvements constitute best practicable treatment and control, and that groundwater conditions will return to compliance with the groundwater limitations within a reasonable period of time. In this case, a quantitative analysis should be performed to show whether additional control measures

(beyond the treatment and control that is already planned) are needed to reverse and consistently prevent the anoxic groundwater conditions that led to the release of iron and manganese from the native soil underlying the ponds. The assessment should include an estimate of the dissolved oxygen concentration (or redox potential) needed within the saturated zone to stop and/or reverse the reducing conditions and an evaluation of whether the lower BOD and (presumably) higher residual dissolved oxygen of the effluent will be sufficient to support and sustain the required levels of oxygen without additional intervention (e.g., aeration within the percolation/evaporation ponds). The proposed CDO was revised to allow the Discharger to demonstrate that the planned facility improvements would stop the ongoing degradation due to iron and manganese, in which case the seepage to the creek could continue without an NPDES permit.

City Comment No. 4 The available data indicate that the facility is not causing degraded groundwater to discharge to Sutter Creek. The City's Isotope Study provides evidence that wastewater is not influencing Sutter Creek water quality.

RESPONSE: The prosecution Team concurs that the available monitoring data do not show measurable impacts to water quality in Sutter Creek as a results of the seepage. However, we have observed and documented seepage into Sutter Creek in an area that is downgradient of the some of the City's wastewater ponds. These findings have since been validated by the City's technical studies in 2003 and 2010[2], as well as the City's groundwater monitoring reports, which routinely show that degraded groundwater flows away from the ponds towards the creek. Staff's review of the Isotope Study is found in the response to Comment 5.e, below.

City Comment No. 5 The Cease and Desist Order does not cite the legal authority that supports the determination that an NPDES permit is required for the seepage of degraded groundwater to Sutter Creek. *Northern California River Watch v. City of Healdsburg* (9th Cir. 2007) 496 F3d 993, ("Healdsburg") is not relevant because:

a. The Court held that the pond into which wastewater was discharged was a wetland subject to the Clean Water Act. This is not the case with Ione's wastewater ponds.

b. The Court did not examine whether seepage of groundwater to a surface water is a point source discharge subject to the Clean Water Act.

c. Unlike the Healdsburg case, there is no "underground hydraulic connection [between the pond and the creek] so a change in water level in one immediately affects another".

d. In the Healdsburg case, the Court concluded that the pond has a significant effect on the "chemical, physical, and biological integrity of the Russian River", and therefore has a substantial nexus to a water of the U.S.

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[2] *Hydrogeologic and Geotechnical Report*, Wallace Kuhl Associates, Janaury 2003 and *Modeling of Groundwater Control Pumping for Wastewater Treatment Plant Expansion Pond 4 and Seepage to Sutter Creek*, Condor Earth Technologies, Inc., October 2010.

e. In the Ione case, there is no evidence of pond water reaching the creek, and no such allegations have been made. The Isotope Study indicates that pond water does not reach the creek, and the available data do not indicate that there is a connection between the pond and the creek.

RESPONSE:
a. The City is correct that Healdsburg is not directly analogous to the City's discharge. Healdsburg involved a discharge to a pond that was "part of a larger wetland adjacent to the Russian River." (*Id.* at 1002.) In Healdsburg, the court came to the conclusion that the pond receiving the discharge was hydraulically connected to the Russian River, and found that a discharge into the ponds was essentially a discharge to the Russian River. Because of this substantial hydraulic connectivity, the court concluded that a discharge into the pond required an NPDES Permit. The Board's Prosecution Team is not contending that an NPDES permit is required for the City's discharge into its treatment ponds.

b. The City is correct that the Healdsburg court did *not* conclude that seepage to a navigable water is the type of discharge that requires an NPDES permit; that question was not before the court. Determining whether an NPDES permit is required is a fact-specific inquiry, one which takes into account both the nature of the discharge and the type of waterbody that receives the discharge. Here, there are at least two scenarios under which the City could be required to obtain an NPDES Permit. First, the Board would require the City to obtain an NPDES permit if the Board found that the hydraulic connection between the City's treatment ponds and Sutter Creek was analogous to the hydraulic connection between the pond in Healdsburg and the Russian River. In that case, an NPDES permit would be required for the City's discharge into its own treatment ponds. Second, if the Board found that seepage from the City's treatment pond, which creates the reducing conditions that free up Iron and Manganese that then migrate to Sutter Creek, is a "point-source" discharge, as that term is defined in the federal Clean Water Act, the Board would require the City to obtain an NPDES permit for the discharge to Sutter Creek.

The Board's Prosecution Team is not making either of these two contentions in the current Order. It is sufficient, from the Prosecution Team's perspective, to require that the Discharger take actions to effectively stop the reducing conditions that result in the migration of Iron and Manganese to Sutter Creek.

c. The Prosecution Team is not arguing that the hydrologic connection between the City's treatment ponds and Sutter Creek is such that discharges into the treatment ponds have a near-immediate effect upon Sutter Creek, as stated above. This would give rise to a situation analogous to Healdsburg.

d. The "substantial nexus" language is culled from the U.S. Supreme Court's jurisprudence regarding the scope of the federal Clean Water Act. Whether or not a body of water that receives a discharge has a "significant nexus" to a navigable water is largely determinative of whether a point-source discharge into that water body must receive an NPDES permit. As stated above, the Board's Prosecution Team is not contending that the City's discharge into its own treatment ponds requires an NPDES permit.

e. The Prosecution Team concurs that the available water quality data do not show that the seepage degrades water quality in Sutter Creek. However, the City's Isotope Study does not conclude that water from the percolation ponds does not reach the creek. In fact, the report states: "…we conclude that pond seepage, if any, is insufficient in magnitude to influence the stable isotope results." The most balanced interpretation of the Isotope Study data is that water quality impacts from the seepage discharge were not discernible during one sampling event when creek flows (approximately 3.8 cubic feet per second, or cfs) were approximately 14,000 times the highest estimate of the seepage discharge rate (approximately 0.00027 cfs).

Additionally, although the Board's Prosecution Team has not been able to detect changes in creek water quality that can be shown to be caused by the discharge, the available hydrogeologic data show that there is a connection between the unlined wastewater ponds and the creek. Specifically, the groundwater potentiometric surface maps provided in the City's quarterly groundwater monitoring reports and an October 2010 technical report[3] prepared by the City's hydrogeologic consultant clearly show that the unlined ponds create a mound of shallow groundwater that creates a localized gradient from the mound to the creek in the area where seepage has historically been observed. The Isotope Study did not provide any new subsurface or groundwater monitoring data that would suggest otherwise.

City Comment No. 6 The City requests additional time to complete the Seepage Discharge Compliance Plan, and recommends a revised due date of 29 February 2012.

RESPONSE: The Prosecution Team understands that the City would like more time to complete additional studies to support development of the Seepage Discharge Compliance Plan, but that the City is not requesting other changes that would not affect the overall compliance schedule as set forth in the Draft CDO. The Proposed CDO includes a revised due date of 30 January 2012 for the Seepage Discharge Compliance Plan and allows an additional two months for submittal of the Report of Waste Discharge required under Item 4.a of the CDO. These changes allow the City additional time for the Seepage Discharge Compliance Plan, but also allow a reasonable time frame for the City to address staff's comments on the plan (if any) before submittal of the Report of Waste Discharge.

City Comment No. 7 There is insufficient evidence to support the proposed connection restriction. The finding that the facility threatens to exceed the disposal facility is based on an outdated estimate of flows into the facility's disposal system from the Amador Regional Sanitation Authority (ARSA) secondary effluent storage reservoir. In fact, the City signed a new agreement with ARSA in 2007 that reduced the allowed ARSA flows from 900 to 650 acre-feet per year.

RESPONSE: The 2007 agreement between ARSA and the City obligates the City to dispose of 650 acre-feet of secondary effluent as follows:

[3] *Modeling of Groundwater Control Pumping for Wastewater Treatment Plant Expansion Pond 4 and Seepage to Sutter Creek*, Condor Earth Technologies, Inc., October 2010.

- 1.03 MGD during the dry season (April through September), and
- 0.11 MGD during the wet season (October through March).

This agreement, which was recently amended to extend its term, expires in December 2012. The City diverts some of this secondary effluent to the Castle Oaks Water Recycling Facility for further treatment and reclamation at the golf course. Any excess ARSA effluent is discharged to the City's percolation/evaporation ponds along with the City's own treated effluent. According to the documents submitted with the City's comments, an average of 412 acre-feet is diverted to the Castle Oaks Golf Course each year, leaving up to 238 acre-feet to be discharged to the City's percolation/evaporation ponds. The golf course demand occurs primarily during the normal irrigation season (May through October) and there is little demand for irrigation water from November through April.

Staff have analyzed the last three years of flow information for the Ione treatment plant and disposal ponds, as shown on Table 1. The City has never exceeded its treatment capacity of 0.55 mgd. However, the City exceeded its disposal capacity once (November 2007) and was at capacity or close to capacity five times (October 2007, December 2007, June 2009, October 2009, July 2010). For the remainder of the time, the City was significantly below its disposal capacity. Based on this information and recent influent flows from the City of Ione, it appears that there is some available disposal capacity at the Ione wastewater treatment facility.

The draft Order has been revised to remove the connection restriction. However, it is appropriate for the City to periodically report on the number of new connections that it has granted and the number of connections that have been lost through the closure of the Preston Youth Correctional Facility or for other reasons. The quarterly progress report has been modified to require this information.

Table 1
City of Ione WWTF Effluent Disposal Capacity Assessment

		Actual Flows to City of Ione P/E Ponds			
Year	Month	City of Ione Effluent (mgd)	ARSA Effluent (mgd)	Total Discharge to Ione P/E Ponds (mgd)	Exceeds Disposal Capacity?
2007	September	0.33	0.00	0.33	No
2007	October	0.31	0.42	0.73	No
2007	November	0.32	0.52	0.84	Yes
2007	December	0.33	0.41	0.75	No
2008	January	0.41	0.01	0.42	No
2008	February	0.36	0.00	0.36	No
2008	March	0.31	0.25	0.56	No
2008	April	0.33	0.04	0.37	No
2008	May	0.33	0.09	0.42	No
2008	June	0.33	0.17	0.51	No
2008	July	0.33	0.00	0.33	No
2008	August	0.34	0.00	0.34	No

Year	Month	Actual Flows to City of Ione P/E Ponds			
		City of Ione Effluent (mgd)	ARSA Effluent (mgd)	Total Discharge to Ione P/E Ponds (mgd)	Exceeds Disposal Capacity?
2008	September	0.35	0.14	0.48	No
2008	October	0.32	0.00	0.32	No
2008	November	0.32	0.00	0.32	No
2008	December	0.32	0.00	0.32	No
2009	January	0.33	0.00	0.33	No
2009	February	0.42	0.00	0.42	No
2009	March	0.36	0.10	0.46	No
2009	April	0.34	0.00	0.34	No
2009	May	0.33	0.20	0.53	No
2009	June	0.32	0.43	0.75	No
2009	July	0.32	0.14	0.45	No
2009	August	0.32	0.19	0.51	No
2009	September	0.32	0.32	0.64	No
2009	October	0.47	0.23	0.70	No
2009	November	0.31	0.00	0.31	No
2009	December	0.34	0.00	0.34	No
2010	January	0.43	0.00	0.43	No
2010	February	0.40	0.00	0.40	No
2010	March	0.40	0.00	0.40	No
2010	April	0.43	0.07	0.51	No
2010	May	0.34	0.00	0.34	No
2010	June	0.39	0.22	0.61	No
2010	July	0.38	0.35	0.73	No
2010	August	0.34	0.24	0.59	No
2010	September	0.34	0.24	0.59	No
2010	October	0.39	0.01	0.41	No

City Comment No. 8 The City asks to be allowed 100 new sewer connections over the next three years for development projects that have been approved, but for which building permits have not yet been issued. This would be in addition to a "one-for-one exchange" under which the City could allow new connections to the extent that existing connections are abandoned or surrendered (e.g., the planned closure of the Preston Youth Correctional Facility would reduce wastewater flows by approximately 26 equivalent dwelling units and the City requests to be allowed to issue building permits for 26 new residential connections following the closure). The City needs these connections in order to generate revenue and the new connections would make it easier to fund the required wastewater facility improvements because the connection fees would be applied to the project and the City would be able to require developers to begin paying the connection fees before building permits are actually issued. A limited number of new connections would not exceed the treatment of disposal capacity of the facility.

RESPONSE: The connection restriction has been removed from the draft Order. The City will be responsible for allocating connections such that it does not exceed the capacity-based flow limits in the Order.

City Comment No. 9 The City asks to exempt a particular project from the connection restriction. The project involves demolition of an existing residence and construction of a medical clinic on the same site. The City has not yet issued a building permit, but has issued a demolition permit and informed the property owner that the project would not require a new sewer connection, but would be served under the pre-existing connection.

RESPONSE: The connection restriction has been removed from the draft Order. The City will be responsible for allocating connections such that it does not exceed the capacity-based flow limits in the Order.

City Comment No. 10 In addition, the City asks to exempt another project form the connection restriction. The project involves construction of a restroom at the Howard Park arena using grant funds. There were previously two modular homes on the site that were disconnected from the City sewer system in 2008. The City has not issued the building permit for the restroom yet, but the project must be completed by 31 March 2011 to comply with the conditions of the grant.

RESPONSE: The connection restriction has been removed from the draft Order. The City will be responsible for allocating connections such that it does not exceed the capacity-based flow limits in the Order.