STATE WATER RESOURCES CONTROL BOARD
BOARD MEETING SESSION – OFFICE OF CHIEF COUNSEL
JULY 7, 2009

ITEM 8

SUBJECT

CONSIDERATION OF A PROPOSED ORDER REMANDING THE PERMIT TO THE CENTRAL VALLEY WATER BOARD IN THE MATTER OF OWN MOTION REVIEW OF WASTE DISCHARGE REQUIREMENTS AND MASTER RECLAMATION PERMIT (ORDER NO. R5-2007-0113 [NPDES NO. CA0079243]) FOR THE CITY OF LODI, CENTRAL VALLEY REGION. (SWRCB/OCC FILE-1886)

DISCUSSION

In September 2007, the Central Valley Regional Water Quality Control Board (Central Valley Board) reissued waste discharge requirements and a master reclamation permit to the City of Lodi (City). The requirements regulate discharges to surface waters and to land from the City's White Slough Water Pollution Control Facility (Facility). The California Sportfishing Protection Alliance filed a timely petition for State Water Resources Control Board's (State Water Board) review of the petition. In July 2008, the State Water Board decided to review the requirements on its own motion.

The State Water Board considered a draft order at the March 17, 2009, board meeting. The draft order focuses primarily on the City's land disposal activities, including whether the City's land disposal activities comply with the State Water Board's regulations in title 27 of the California Code of Regulations (Title 27). The draft order has been revised to address comments received at the March meeting.

The Central Valley Water Board found that the Facility was exempt from these regulations. The draft order concludes that there is insufficient evidence in the record to support the finding in the requirements that the City's land disposal discharges meet the Title 27 exemption criteria. Consequently, until the City can demonstrate compliance with Title 27, the Central Valley Water Board must regulate the City's land disposal activities under an appropriate compliance schedule or time schedule order.

The draft order also requires the Central Valley Water Board to add a narrative chronic toxicity effluent limitation to the City's requirements, in accordance with Water Quality Order 2008-0008 (City of Davis). Finally, the draft order directs the Central Valley Water Board to revise the requirements to mandate that the City's wintertime irrigation management plan include only practices that "prevent", rather than "minimize", the discharge of biosolids to surface waters.

POLICY ISSUE

Should the State Water Board adopt the revised draft order remanding the City's waste discharge requirements to the Central Valley Water Board?

FISCAL IMPACT

Central Valley Water Board work resulting from the proposed remand will be addressed with current and future budgeted resources.

REGIONAL BOARD IMPACT

Yes, Central Valley Water Board.

STAFF RECOMMENDATION

Staff recommends that the State Water Board adopt the revised draft order.

State Water Board action on this item will assist the Water Boards in reaching Goals 2 and 6 of the Strategic Plan Update: 2008-2012 to protect groundwater basins and enhance consistency across the water boards.

D R A F T Revised ~~March~~ June 12, 2009

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

ORDER WQ 2009-

In the Matter of Own Motion Review of

CITY OF LODI WASTE DISCHARGE REQUIREMENTS AND MASTER RECLAMATION PERMIT (ORDER NO. R5-2007-0113 [NPDES NO. CA0079243])

Issued by the
California Regional Water Quality Control Board,
Central Valley Region

SWRCB/OCC FILE A-1886

BY THE BOARD:

In this order, the State Water Resources Control Board (State Water Board or Board) reviews on its own motion waste discharge requirements for the City of Lodi's White Slough Water Pollution Control Facility. Our review focuses primarily on whether the requirements are consistent with State Water Board regulations governing waste disposal to land. These regulations are contained in title 27 of the California Code of Regulations (Title 27). The Board concludes that the requirements are not consistent with Title 27 and remands the requirements to the Central Valley Regional Water Quality Control Board (Central Valley Water Board) for appropriate revisions. In addition, the Board remands the requirements to the Central Valley Water Board to revise a requirement governing wintertime irrigation and to include a narrative limitation for chronic toxicity.

I. BACKGROUND

A. White Slough Facility

The White Slough Water Pollution Control Facility (White Slough Facility or Facility) is located in San Joaquin County, southwest of the City of Lodi, along the west side of Interstate 5. Adjacent land use is primarily agricultural, with large dairy operations to the north and northeast and irrigated farmland to the east and south. To the west of the Facility are Delta waterways and farmlands.

The City disposes of treated municipal effluent from the Facility through both a surface water discharge and land application. In addition, the Facility provides recycled water

year-round to the Northern California Power Agency and San Joaquin County Vector Control District. During the winter months, the Facility provides tertiary treatment and disinfection for the effluent, which is discharged to Dredger Cut, a dead-end slough within the Sacramento-San Joaquin Delta. During the remainder of the year, from mid-April through mid-October, the City disposes of effluent through land application.

The land application facilities consist of 49 acres of unlined ponds, comprised of four storage ponds and three equalization basins, and about 790 acres of agricultural fields adjacent to the Facility. The storage ponds cover 40 acres. The City disposes of a mixture of waste streams through land application, including municipal effluent, industrial wastewater, biosolids, and storm water. Municipal effluent that will be discharged to the agricultural fields is treated to undisinfected secondary standards[1] and pumped to the equalization basins. From there, it is either first placed in the storage ponds or applied directly to the agricultural fields for irrigation use. The agricultural fields are used to grow fodder and feed crops, which are not used for direct human consumption.

In addition to the secondary-treated municipal wastewater, the City discharges untreated industrial wastewater through land application. The City maintains a separate industrial wastewater line, which, unlike the municipal influent line, does not deliver wastewater to the White Slough Facility. Rather, during the irrigation season, untreated industrial wastewater is blended with the secondary-treated flows in the storage ponds and discharged to the agricultural fields. In the winter, the industrial waste stream is directed to the storage ponds.

The industrial line receives food processing wastewater, metal finishing wastes, cooling water, stormwater from industrial areas, and runoff and stormwater flows from agricultural areas. During the summer months, about 90 percent of the industrial flow consists of food processing wastewater, seven percent is from metal finishers, and approximately one percent is winery waste.

Biosolids are treated by anaerobic digestion and stored at the White Slough Facility in a lined biosolids stabilization lagoon. Fluids decanted from the lagoon, the biosolids supernatant, are stored in the Facility's storage ponds. During the summer months, a biosolids

[1] See Order No. R5-2007-0113, attach. F, at F-58; Water Pollution Control Facility Report of Waste Discharge (Jul. 28, 2004) (Report of Waste Discharge), p. 32, Central Valley Water Board Administrative Record (AR), vol. 4, item 128. Because Order No. R5-2007-0113 only requires that the City comply with a minimum level of effluent quality based on secondary treatment, the discharge must be evaluated on that basis.

slurry is created by blending sludge with wastewater in the storage ponds, and the slurry is applied by flood irrigation to 225 acres of the agricultural fields.

The City has been upgrading the White Slough Facility to improve treatment. The latest improvements expanded the Facility's daily average flow capacity from 7 to 8.5 million gallons per day (mgd) and added tertiary filtration and ultraviolet disinfection. The final improvements are scheduled to be fully implemented in 2009. They include modifications to the aeration process to improve nitrification and denitrification, redirecting the biosolids supernatant from the onsite ponds to the domestic treatment train, and repairing the leaking municipal influent line.

B. Order No. R5-2007-0113

On September 14, 2007, the Central Valley Water Board reissued waste discharge requirements and a master reclamation permit for the City's White Slough Facility in Order No. R5-2007-0113. The requirements also serve as a National Pollutant Discharge Elimination System (NPDES) permit. Order No. R5-2007-0113 regulates the City's land disposal activities principally through land discharge specifications, groundwater limitations, and special study requirements. The land discharge specifications require that the:

- hydraulic loading to any individual agricultural field be at reasonable agronomic rates designed to minimize percolation of wastewater constituents below the evaporative and root zone;
- total nitrogen loading to any field not exceed the agronomic rate for the plant available nitrogen for the type of crop to be grown;
- biochemical oxygen demand (BOD) loading to the agricultural fields not exceed specified rates;
- wastewater applied to the fields not exceed specified cumulative metals loading limits; and
- secondary effluent discharged to the onsite ponds meet maximum daily and monthly average effluent limits for BOD and settleable solids.[2]

The groundwater limitations prohibit waste releases from any portion of the Facility, including the agricultural fields, from causing concentrations of fourteen waste constituents in groundwater to exceed specified limits or natural background quality, whichever

[2] Order No. R5-2007-0113, Land Discharge Specifications IV.B.1 through B.5.

is greater.[3] Those constituents include total dissolved solids (TDS), boron, chloride, nitrogen, nitrates, and ammonia. The limitations, however, do not become effective until the City characterizes natural background groundwater quality, after at least two years of monitoring, in a technical report that must be submitted to the Central Valley Water Board by August 1, 2010.[4] If the groundwater monitoring indicates that waste releases to groundwater have caused or threaten to cause increases in background concentrations, the City must submit a workplan for a technical evaluation of each Facility component to determine best practicable treatment or control for each waste constituent of concern. Any necessary Facility modifications must be completed no later than four years after the Central Valley Water Board Executive Officer's determination that the technical evaluation is adequate, unless the Executive Officer approves a longer schedule.

In addition to the groundwater study, Order No. R5-2007-0113 directs the City to conduct a study to characterize the wastewater influent collected by its industrial line.[5] The study's goal is to isolate and identify the primary, unique components of the industrial influent. Once a workplan is submitted and approved, the City must complete the study within two years after the study is commenced.

C. Basin Plan

The water quality control plan for the Sacramento and San Joaquin River Basins (Basin Plan)[6] provides the basis for many of the requirements in Order No. R5-2007-0113. The Basin Plan designates the beneficial uses for groundwater underlying the Facility, which include municipal and domestic supply, agricultural supply and stock watering, and industrial process water and service supply.[7] Water quality objectives to protect the uses include narrative objectives for chemical constituents, taste and odors, and toxicity. In addition, groundwater designated for domestic and municipal supply must, at a minimum, meet specific numeric objectives for chemical constituents, including maximum contaminant levels and secondary maximum contaminant levels contained in title 22 of the California Code of Regulations

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[3] *Id.,* Receiving Water Limitations, V.B.1.C.

[4] *Id.,* Provisions VI. C.2.d.

[5] *Id.,* Provisions VI.C.2.c.

[6] Fourth Edition (1998).

[7] Basin Plan at II-3.00.

(Title 22).[8] The Basin Plan provides, however, that the objectives "do not require improvement over naturally occurring background concentrations."[9]

The Basin Plan also incorporates the State Water Board's antidegradation policy, Resolution No. 68-16.[10] The policy, entitled Statement of Policy with Respect to Maintaining High Quality of Waters in California (Antidegradation Policy), generally protects high quality surface waters and groundwater from degradation. Reductions in water quality are allowed only if the changes are (1) consistent with maximum benefit to the people of the state, (2) do not unreasonably affect present and anticipated beneficial uses, and (3) do not result in water quality less than applicable water quality objectives. Any activity that can lower the quality of high quality waters must comply with waste discharge requirements that "will result in the best practicable treatment or control of the discharge necessary" to prevent pollution and nuisance and to maintain "the highest water quality consistent with maximum benefit to the people of the State."

D. Title 27

In addition, the State Water Board's Title 27 regulations apply to the City's land disposal activities. The regulations establish minimum standards governing the water quality aspects of waste discharges to land for treatment, storage, or disposal.[11] The regulations classify wastes and contain siting, design, construction, monitoring, and closure requirements for waste management units, which include landfills, waste piles, surface impoundments, and land treatment units. For wastes classified as "designated wastes," Title 27 establishes containment criteria, including liner requirements, to prevent the wastes or leachate from migrating from the units to waters of the state and extensive monitoring requirements to detect releases of waste to groundwater or surface water.[12] "Designated wastes" include nonhazardous wastes that contain pollutants that could be released from a waste management unit in concentrations exceeding applicable water quality objectives or that could reasonably be

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[8] *Id.* at III-9.00 through 10.00.

[9] *Id.* at III-9.00.

[10] Basin Plan at IV-8.00 & appen. A.2.

[11] Cal. Code Regs., tit. 27, § 20080, subd. (a).

[12] See *id.,* § 20210.

expected to affect beneficial uses of state waters.[13] The wastes discharged by the City to land at the Facility fall into this category.

Title 27 conditionally exempts certain activities from its provisions. To qualify for an exemption, the activity must meet, and continue to meet, specified preconditions. Title 27 contains several ~~three~~ conditional exemptions that are relevant to the City's land application activities. These include exemptions for domestic sewage, wastewater, ~~and~~ soil amendments, and reuse. Title 27, at section 20090, exempts these activities "so long as the activity meets, and continues to meet, all preconditions listed:

> (a) Sewage – Discharges of domestic sewage or treated effluent which are regulated by [waste discharge requirements] . . . , or for which [waste discharge requirements] have been waived, and *which are consistent with applicable water quality objectives*, and treatment or storage facilities associated with municipal wastewater treatment plants, provided that residual sludges or solid waste from wastewater treatment facilities shall be discharged only in accordance with [Title 27].
>
> (b) Wastewater – Discharges of wastewater to land, including but not limited to evaporation ponds, percolation ponds, or subsurface leachfields if the following conditions are met:
>
> (1) the applicable [regional water quality control board] has issued [waste discharge requirements], or waived such issuance;
>
> (2) the discharge is in compliance with the applicable water quality control plan; and
>
> (3) the wastewater does not need to be managed . . . as a hazardous waste. . .
>
> (f) Soil Amendments – use of nonhazardous decomposable waste as a soil amendment pursuant to applicable best management practices, provided that [regional water quality control boards] may issue waste discharge or reclamation requirements for such use." ~~(Emphasis added.)~~
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> (h) Reuse – Recycling or other use of materials salvaged from waste, or produced by waste treatment, such as scrap metal, compost, and recycled chemicals, provided that discharges of residual wastes from recycling or

[13] See Wat. Code, § 13173. "Designated wastes" also include hazardous wastes that have been granted a variance from hazardous waste management requirements pursuant to Health and Safety Code § 25143.

treatment operations to land shall be according to applicable provisions of this division~~. (Emphasis added.)~~

(Emphasis added.)

~~The Central Valley Water Board found that the City's land disposal activities were exempt from Title 27 under section 20900(a).[14] The Central Valley Water Board included within the scope of the exemption the discharge of municipal sewage and the other waste streams to the agricultural fields and to the storage ponds.~~

E. California Sportfishing Protection Alliance Petition

The California Sportfishing Protection Alliance (CALSPA) filed a timely petition for review of Order No. R5-2007-0113 in October 2007. In July 2008, the State Water Board determined, in Order WQ 2008-0005, to review the requirements on its own motion. The following discussion addresses some of the issues raised in the CALSPA petition.[~~15~~14]

II. ISSUES AND FINDINGS

A. Title 27

Issue: CALSPA asserts that the White Slough permit authorizes the land disposal of sludge, untreated industrial wastewater, and domestic effluent in violation of Title 27.

Discussion: The Board agrees with this assertion. Order No. R5-2007-0113 does not contain the necessary findings that the City's land disposal activities meet all of the preconditions for an exemption under Title 27. In particular, the order does not contain findings, nor is there evidence in the record supporting the conclusion that, the City's land disposal operations are consistent with the applicable water quality objectives in the Basin Plan. The monitoring that has been performed to date is inadequate to demonstrate compliance. Further, the limited evidence that is in the record indicates that, at a minimum, discharges from the unlined storage ponds at the Facility have released waste constituents to groundwater at concentrations that exceed applicable water quality objectives.

~~[14] Order No. R5-2007-0113, attach. F at F-56.~~

[~~15~~14] Issues raised by CALSPA that are not discussed in this order are hereby dismissed as not substantial or appropriate for State Water Board review. See *People v. Barry* (1987) 194 Cal.App.3d 158, 175-177; *Johnson v. State Water Resources Control Board* (2004) 123 Cal.App.4th 1107; Cal. Code Regs., tit. 23, § 2052, subd. (a)(1).

In the following discussion, the Board first addresses which Title 27 exemption could most appropriately apply to the City's land disposal activities.[~~16~~15] The Board then analyzes the Central Valley Water Board's findings regarding an exemption. Third, the Board addresses the sufficiency of the evidence to demonstrate compliance with the preconditions for an exemption. Finally, the Board addresses additional CALSPA contentions regarding Title 27.

1. Applicable Exemption

In the Lodi permit, the Central Valley Water Board found that all of the City's discharges to land, including discharges to the storage ponds and agricultural fields, were conditionally exempt under section 20090(a), the sewage exemption.[~~17~~16] The Central Valley Water Board now contends that the storage ponds discharges are unconditionally exempt from Title 27 because they are covered under the "sewage treatment plant" exemption in Water Code section 13172. In addition, the Central Valley Water Board contends that the City's land application to the agricultural fields falls under the reuse exemption in section 20090(h). For the reasons explained below, we conclude that the wastewater exemption in section 20090(b), rather than the sewage or reuse exemptions, is the most appropriate exemption to consider applying to Lodi's land disposal activities.

Water Code section 13172 required the State Water Board to adopt uniform requirements for the siting, operation, and closure of waste disposal sites, "except for sewage treatment plants." These requirements are contained in the Title 27 regulations, which specifically exempt sewage treatment plants from coverage. The sewage treatment plant exemption is included in the Title 27 sewage exemption, which covers both (1) discharges of domestic sewage and treated effluent and (2) treatment or storage facilities associated with municipal wastewater treatment plants.[~~18~~17] The second category implements the sewage treatment plant exemption and has no preconditions. The first was added at the request of dischargers, and is subject to preconditions. The principal precondition is that the discharge must be in compliance with the applicable basin plan.

[~~16~~15] For purposes of this discussion, the State Water Board, at the request of the Central Valley Water Board, takes official notice of the Statement of Reasons for Title 27 and its predecessor, the "chapter 15" regulations, formerly contained in chapter 15, division 3, title 23 of the California Administrative Code. (See Cal. Code Regs., tit. 23, § 648.2.)

[~~17~~16] Order No. R5-2007-0113, attach. F at F-56.

[~~18~~17] See p. 6, *ante.*

The State Water Board added the first category because the discharge of "effluent from treatment facilities is controlled under the [NPDES] permit system, or under waste discharge requirements which implement basin plan water quality objectives."[~~19~~18] The category covers post- treatment activities, i.e. discharges from outfalls, percolation ponds, and spray fields, and it "explicitly requires discharges to be consistent with water quality control plan objectives for receiving waters."[~~20~~19]

The State Water Board intended to include within the sewage treatment plant exemption treatment and storage facilities "associated with municipal wastewater treatment."[~~21~~20] The exemption does not apply to the Lodi storage ponds for two reasons. The primary reason is that effluent from the White Slough treatment plant has already gone through the treatment process before it is sent to the ponds. The ponds serve only to hold wastewater until it can be used on the agricultural fields. The ponds and field application are, therefore, part of post-treatment discharge or disposal, rather than wastewater treatment. Second, the ponds are used to store wastewater some of which does not go through the treatment plant, and is, thus, "not associated with the wastewater treatment plant." These wastestreams include untreated industrial wastes[~~22~~21] and stormwater runoff from industrial and agricultural areas.

Likewise, the Board concludes that the reuse exemption in Title 27 is not applicable to the City's land application to the agricultural fields. The reuse exemption in section 20090(h) covers "[r]ecycling or other use of materials salvaged from waste, or produced by waste treatment, such as scrap metal, compost, and recycled chemicals . . . ." "'Recycled water' means waters which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur . . . ."[~~23~~22] Lodi applies a wastestream to land that includes wastes that are neither treated nor "salvaged from waste." Lodi's activities, therefore, do not fall within the reuse exemption.

[~~19~~18] Statement of Reasons for Subchapter 15 (SOR), p. 1.5.

[~~20~~19] *Id.* at 1.40.

[~~21~~20] *Ibid.*

[~~22~~21] Both Lodi's Report of Waste Discharge and Order No. 5-2007-0113 describe the wastewater in the influent line as untreated. The cannery wastewater, which makes up the bulk of the flow in the influent line during the summer months, apparently does not receive any treatment. Evidence in the record indicates that wastewater from two metal finishers may undergo pH adjustment. The industrial line also receives other wastestreams that are untreated, such as industrial and agricultural stormwater.

[~~23~~22] Wat. Code §13050, subd. (n).

~~The Central Valley Water Board found that section 20090(a) applied to all of the City's waste disposal activities.[24] This exemption covers sewage, defined as discharges of domestic sewage or treated effluent and treatment and storage facilities associated with municipal treatment plants. The exemption excludes residual sludges or solid waste, which are subject to Title 27. Because of the exclusion, CALSPA contends that section 20090(a) does not exempt the City from complying with Title 27 with respect to the biosolids slurry. The City contends that the discharge of secondary effluent is properly covered under section 20090(a) and that the discharge of industrial wastewater is subject to the exemption under section 20090(b) for wastewater. The City also asserts that the discharge of both the biosolids slurry and the biosolids supernatant are exempt from Title 27 -- as soil amendments -- under section 20090(f).~~

~~The preconditions for an exemption for sewage under subsection (a) and wastewater under subsection (b) are similar. Nevertheless,~~ ~~T~~the Board finds that the most appropriate exemption for the wastewater mixture that is seasonally applied to the agricultural fields and stored year-round in the onsite ponds is subsection (b). This exemption covers wastewater that is discharged to land, including to evaporation or percolation ponds. The sewage exemption covering discharges of domestic sewage or treated effluent is not applicable because the City discharges a wastewater mixture to the ponds and to the agricultural fields, which includes not only treated sewage but also wastes that do not go through the municipal treatment plant.[~~25~~23] As stated previously, the wastewater mixture applied to the fields and discharged to the ponds includes, at various times, secondary effluent, untreated industrial wastewater, a biosolids slurry, stormwater and runoff, and biosolids supernatant.

~~[24] The Central Valley Water Board now contends that the City's land disposal activities constitute wastewater reclamation and that aspects of the activities fall within the "reuse" exemption under Title 27, subdivision (h). We disagree. The City's activities primarily constitute waste disposal, rather than reclamation. But for the need to dispose of effluent, there is no evidence in the record that the City would replace the effluent with potable water supplies. (See State Water Board Order WQ 81-16 (*Ramona Municipal Water District*).) Water Code section 13523.5, which governs water reclamation requirements, does not apply to waste discharge requirements regulating the land disposal of wastes. Likewise, the City's activities do not fall within the reuse exemption under Title 27. The wastewater mixture applied to land, including the untreated industrial waste stream, cannot be considered "[r]ecycling or other use of materials salvaged from waste, or produced by waste treatment, such as scrap metal, compost, or recycled chemicals." (Cal. Code Regs., tit. 27, § 20090, subd. (h).)~~

[~~25~~23] Cf. 40 C.F.R. §403.3(q), which excludes from the federal definition of a publicly owned treatment works "sewers, pipe and other conveyances" if they do not convey wastewater to the treatment plant. The treatment plant is the portion of the publicly owned treatment works that is designed to provide treatment of municipal and industrial waste. (*Id.* §403.3(r).)

CALSPA correctly asserts that the sewage exemption in Title 27 does not include residual sludges. However, residual sludges may be discharged in compliance with Title 27 if the sludges are discharged in accordance with any other applicable exemption under section 20090, such as the wastewater exemption. The City contends that the discharge of both the biosolids slurry and supernatant is exempt from Title 27 as a soil amendment under section 20090(f). ~~In this case,~~ T~~t~~he Board concludes, however, that the wastewater exemption is more appropriate than the soil amendment exemption. The biosolids slurry and supernatant are applied to land as part of a wastewater mixture, as noted previously. In addition, the soil amendment exemption applies to decomposable wastes[~~26~~24], and the wastewater mixture applied to land includes waste components that are likely not decomposable, such as metal finishing wastes and a considerable amount of non-nutritive salts.

Based on the foregoing discussion, the Board concludes that it is the wastewater, rather than the sewage, exemption that could apply to the discharge. The Board will, therefore, consider whether the findings in Order No. R5-2007-0113 and the evidence in the record support the conclusion that the City's land disposal activities meet the preconditions for the wastewater exemption. The Central Valley Water Board has issued waste discharge requirements for the City's land disposal activities and the discharges do not appear to be hazardous. Consequently, the Board will focus its analysis on whether the findings and the evidence indicate that the City's land disposal activities comply with the remaining precondition under section 20090(b) that "the discharge is in compliance with the [Basin Plan]." The City bears the burden of proof on this issue. The City must demonstrate, with appropriate data, that its land disposal activities comply with the Basin Plan.

2. Findings

The Central Valley Water Board concluded that the City's land disposal activities were exempt under the sewage exemption in Title 27, but did not explicitly find that the City's discharge currently complies with the Basin Plan. Instead, the record reflects that the Central Valley Water Board stated that additional information on groundwater quality and discharge characterization was necessary to assess whether the City's discharge complies with the Basin

[~~26~~24] "Decomposable wastes" are wastes "which, under suitable natural conditions, can be transformed through biological and chemical processes into compounds that do not impair the quality of waters ~~wastes~~ of the state." (Cal. Code Regs., tit. 27, § 20164.)

Plan. Without this information, however, the Central Valley Water Board could not legally make the necessary finding that the City's land disposal activities meet the precondition for an exemption. Both the sewage and wastewater exemptions presuppose a monitoring program that is adequate to demonstrate compliance with the precondition. Both Title 27 and the Facility have been in place many years; it is reasonable to conclude that the City should, by now, have been able to provide sufficient information to the Central Valley Water Board demonstrating that it complies with the exemption criteria.

As discussed above, the Basin Plan contains narrative and numeric groundwater objectives for waste constituents that apply to the City's activities, unless "naturally occurring background concentrations" exceed the objectives. The narrative and numeric objectives in the Basin Plan presumptively apply to groundwater unless the Central Valley Water Board has evidence in the record indicating that naturally occurring background concentrations exceed the objectives. A discharger who contends that naturally occurring background concentrations exceed the otherwise applicable objectives bears the burden of providing evidence to the Central Valley Water Board that supports this contention. Once the Central Valley Water Board is presented with this evidence, the board must then determine if it is sufficient to demonstrate that naturally occurring background concentrations exceed the objectives. If it is, then the naturally occurring background concentration of the constituent becomes the de facto objective. Absent evidence to the contrary, however, the numeric and narrative groundwater objectives in the Basin Plan apply.

The City has presented preliminary evidence to the Central Valley Water Board indicating that ele~~vatedele~~ctrical conductivity (EC) concentrations detected in groundwater at the site may be due to natural causes. Although the City has apparently been conducting groundwater monitoring since 1989, the City and the Central Valley Water Board nevertheless agree that naturally occurring background EC concentrations have not been adequately characterized. Hence, the Central Valley Water Board has not yet determined whether naturally occurring background EC concentrations are higher than the Basin Plan EC objectives.

Likewise, prior monitoring has been inadequate to characterize the wastes discharged to the unlined ponds and agricultural fields at the Facility and to assess potential groundwater impacts. The sampling program for the ponds has focused primarily on nitrogen compounds and salts, such as EC or TDS, which are the constituents most difficult to distinguish from the historic legacy of other discharges in the area. There may be many other wastewater constituents of concern that are percolating through the bottom of the ponds to

groundwater, such as volatile organic compounds or certain metals, that have not been addressed. In this regard, the Board notes that the City's analytical monitoring results from June 2000 through August 2006 indicate that there are no data for the great majority of pollutants with maximum contaminant levels identified in the Title 22 regulations.[~~27~~25]

The Central Valley Water Board has taken steps to address this lack of data by imposing expanded monitoring requirements in Order No. R5-2007-0113. For example, the Central Valley Water Board required additional monitoring of wastewater in the storage ponds to assess degradation in the underlying groundwater and "to derive appropriate numerical groundwater quality objectives for the Facility that are consistent with the Basin Plan."[~~28~~26] Likewise, the Central Valley Water Board required the City to conduct an industrial influent characterization study to "determine the potential impacts of the untreated waste on the underlying groundwater quality."[~~29~~27] The Board notes, however, that the City is required to monitor the pond wastewater, the wastewater mixture applied to the agricultural fields, and the groundwater itself for priority pollutants, other than certain metals, only once during the permit term.[~~30~~28] One sampling event is unlikely to provide sufficient data to assess the potential impacts of discharging priority pollutants on groundwater. In any event, the lack of data in the current record leads to the conclusion that an exemption from Title 27 is not justified at the present time.

3. Evidence in the Record on Basin Plan Compliance

In the area near the White Slough Facility, the regional groundwater flow direction appears to be from the Delta waterways in the west toward a large groundwater depression to the south and east. The current regional flow regime is profoundly influenced by intensive groundwater withdrawals in an area bounded by Highway 99 on the west and the foothills to the east and by Highway 12 to the north and the city of Stockton to the south. The deep groundwater depression caused by pumping draws groundwater toward it from all directions. At the center of this depression, the local water table elevation is as much as 70 feet below the nearly sea level elevation of the Delta's waterways. In the area just to the east of the White Slough Facility, the local expression of this regional groundwater flow regime results in

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[~~27~~25] AR, vol. 2, item 32, attach. F, Table F-14 at pp. F-61 through F-63.

[~~28~~26] Order No. R5-2007-0113, attach. F at p. F-65.

[~~29~~27] *Id.* at F-72.

[~~30~~28] *Id.*, attach. E, VI.A., VII.B., VIII.B.

eastward flow. The groundwater level in the Delta area to the west is lowered in some areas by agricultural well pumping, but that effect tends to be localized due to the continual groundwater recharge by the Delta's surface water channels.

The land surface elevations on the City's property range from about 0 to 5 feet above mean sea level near the western edge of the property to about 10 feet above mean sea level near the eastern edge. Groundwater underlying the Facility is very shallow, ranging from the ground surface near the western edge of the property to more than 20 feet below mean sea level near the eastern edge of the property. Groundwater elevations in the immediate vicinity of the treatment plant change little throughout the year, ranging from 1 to 2 feet below mean sea level in the spring to about 2 to 4 feet below mean sea level in the fall.

Evidence in the record indicates that there is a persistent, slight groundwater mound underlying the Facility, which influences the groundwater gradient and flow direction within the City's property.[~~31~~29] While groundwater from the mound does flow to the east, in response to the regional gradient, the mound also appears to induce flow away from the facility to the south and west. City property located immediately north of the Facility exhibits a northeasterly flow; while property located immediately southeast exhibits a seasonal shift from southeasterly in the winter months to northeasterly/easterly in the summer months.[~~32~~30] Property located further to the east from the mound shows a dominant easterly flow throughout the year. At the southwest corner of the City's property, the mound apparently induces flow away from the Facility to the south and west.

The most likely cause of the groundwater mound is a continued discharge to groundwater in the area of the Facility. The unlined storage ponds at the Facility are the most likely source for the flow causing the groundwater mound. The onsite storage ponds are extensive, and they appear to provide the only large quantity, constant source of water available for creating and maintaining the mound. The four storage ponds have depths ranging from 7 to 9 feet, and they hold approximately 97 million gallons when full.

Evidence in the record indicates that there is significant leakage from the ponds. The average annual percolation rate from the 49-acre pond area is estimated to be approximately 0.3 inches per day, totaling about 109 million gallons of wastewater per year lost

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[~~31~~29] See, e.g., City of Lodi White Slough Water Pollution Control Facility Groundwater Monitoring Status Report (June 2003), AR, vol. 12, item 412.

[~~32~~30] *Id.* at 5.

to percolation.[~~33~~31] This equates to nearly 10 percent of the average annual flow to the agricultural fields. In addition, Central Valley Water Board staff observed rapid percolation of untreated industrial wastewater during an inspection in November 2005. At that time, the pond was relatively dry and the industrial flow "was observed to be percolating into the pond bottom within a short distance from the outfall."[~~34~~32]

An additional concern is that the thickness of the soil between the pond bottoms and groundwater may be inadequate to allow soil treatment of the percolating wastewater to occur. The bottom elevation of Pond 1 is 5.5 feet and of Pond 4 is 2.5 feet above mean sea level. The groundwater elevation recorded in a nearby monitoring well has historically varied from a high of 3.2 feet above mean sea level to a low of 11 feet below mean sea level. Historically-recorded high groundwater levels indicate that the separation between the bottom of Pond 1 and groundwater has been as little as 2.3 feet, and Pond 4 has been inundated by nearly a foot.

A review of quarterly nitrate concentration and groundwater table elevation maps, matched by date, in the City's 2003 Groundwater Monitoring Status Report indicates that onsite nitrate concentrations remain highest in the pond area, an area near the center of the mound.[~~35~~33] The four closest groundwater monitoring wells to the storage ponds are WSM2, WSM3, WSM4, and WSM8. Because of the persistent groundwater mound underlying the Facility in the storage pond area, these wells are assumed to be hydraulically downgradient of the ponds for most, if not all, of the year. Between August 2001 and November 2005, all four wells exhibited median nitrate concentrations over 11 milligrams per liter (mg/L) as N.[~~36~~34] The applicable groundwater objective for nitrate is the maximum contaminant level of 10 mg/L as N. Three of the wells had peak concentrations, during this period, of over 36 mg/L, more than three times the maximum contaminant level for nitrate as N.[~~37~~35] This result would not be expected if the nitrate source were off-site. Groundwater in the area to the north of the Facility appears to flow in an easterly

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[~~33~~31] City of Lodi White Slough WPCF Soil and Groundwater Investigation Existing Conditions Report, Final Report (Sept. 2006) (Final Report) at pp. 2-18, AR, vol. 13, item 415.

[~~34~~32] Letter from Pat Leary, Senior Engineer, Central Valley Water Board, to Richard Prima, Director, Public Works Department, City of Lodi, with enclosed Inspection Report (May 3, 2006) at p. 5 of Inspection Report, AR, vol. 3, item 63.

[~~35~~33] Fn. ~~24~~29, *ante*, appendices A & C.

[~~36~~34] Final Report, fn. ~~26~~31, *ante,* Figure 5-10.

[~~37~~35] *Ibid.*

or northeasterly direction, making it unlikely that higher nitrate concentrations to the north of the Facility are responsible for the high onsite nitrate concentrations in the pond area.

Peak EC concentrations are also present within the area of the mound. The highest median value was found in WSM-2, located near the onsite ponds.[~~38~~36] The value was 1,750 micromohs per centimeter (µmhos/cm). This value, at a minimum, exceeds the applicable, upper range, numeric EC objective in the Basin Plan. The Basin Plan incorporates by reference specific tables from Title 22 as numeric water quality objectives for groundwater designated for municipal use.[~~39~~37] The tables include Table 6449-B, which contains secondary maximum contaminant levels for EC. They consist of a range of values – recommended, upper, and short-term values. These values are 900, 1,600, and 2,200 µmhos/cm, respectively. Evidence in the record indicates that the median EC concentration in groundwater underlying the facility near the storage ponds from 2001 to 2005 exceeded the upper range value of 1,600 µmhos/cm. The short-term value of 2,200 µmhos/cm is not appropriate because it is intended to apply only on a temporary basis pending construction of water treatment facilities or the development of new water sources.

The Basin Plan incorporates as groundwater objectives only the numeric values in the selected tables from Title 22.[~~40~~38] It does not incorporate other provisions of Title 22, such as the provisions on monitoring, reporting, or waivers.[~~41~~39] The Basin Plan does not require that the Central Valley Water Board establish a fixed consumer acceptance contaminant level prior to

[~~38~~36] *Id.* at pp. 5-14.

[~~39~~37] Basin Plan at III-10.00.

[~~40~~38] *Ibid.* The Basin Plan states that ground waters designated for municipal use "shall not contain concentrations of chemical constitutents in excess of the . . . [MCLs] specified *in the following provisions of Title 22 . . ., which are incorporated by reference into this plan: Tables 64449-A . . . and 64449-B.*" (Emphasis added.)

[~~41~~39] Accord, State Water Board Order WQ 2003-0009 (*County Sanitation District No. 2 of Los Angeles and Bill Robinson*).

implementing the groundwater EC objective. No additional data is necessary to conclude that, at a minimum, groundwater underlying the White Slough facility exceeds the upper range of the secondary maximum contaminant level for EC.

Likewise, the median EC value exceeds ~~In contrast, the recommended secondary maximum contaminant level[42] and~~ the agricultural water quality goal[43] ~~are 900 and~~ of 700 µmhos/cm as a long-term average, which, according to the Lodi permit, "would apply the narrative chemical constituents objective".[~~44~~40] ~~, respectively.~~ This goal "is intended to prevent reduction in crop yield . . . for salt-sensitive crops, such as beans, carrots, turnips, and strawberries," which "are either currently grown in the area or may be grown in the future."[~~45~~41] Nevertheless, the Board notes that site-specific factors, such as periodic flooding or rainfall patterns, can affect irrigation salinity requirements.[~~46~~42] The State Water Board is unable to assess, based on the current record, whether site-specific factors in this case would justify higher EC concentrations however, the Central Valley Water Board can evaluate this issue on remand. Further, a~~A~~s mentioned previously, ~~however,~~ the City contends that the elevated EC levels may be due to regional groundwater conditions, which have been influenced by the predevelopment intrusion of brackish to saline water in the Delta region.

There is little information in the record on concentrations of wastewater constituents in the storage ponds. Limited data indicates that TDS and EC values in the pond exceed water quality objectives for groundwater during much of the year. Nitrate concentrations as N, on the other hand, have been relatively low. From 2002 to 2004, average monthly nitrate concentrations in the storage ponds varied from roughly 1 to 7 mg/L as N. On the other hand, ammonia concentrations in the ponds are relatively high, and the City has indicated that

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~~[42] Cal. Code Regs., tit. 22, §64449, subd. (a), Table 64449-B. The secondary maximum contaminant levels for EC range from 900 to 2,200 µg/cm. The recommended level of 900 µg/cm is "desirable for a higher degree of consumer acceptance." The upper level of 1,600 µg/cm is acceptable "if it is neither reasonable nor feasible to provide more suitable waters." The short-term level of 2,200 µg/cm is acceptable "only for existing community water systems on a temporary basis pending construction of treatment facilities or development of acceptable new water sources." (*Id.,* § 64449, subd. (d).)~~

~~[43] See discussion in State Water Board Order WQ 2004-0010 (*Woodland*), pp. 4-8, regarding recommended EC levels for irrigation. In general, no soil or cropping problems patterns are encountered when EC levels in irrigation water are less than 700 µg/cm. (*Id.* at 6.) Higher EC levels may be appropriate if there is evidence indicating that site-specific factors, such as periodic flooding or rainfall patterns, affect salinity requirements.~~

[~~44~~40] Order No. R5-2007-0113, F-36.

[~~45~~41] *Id.* at F-36 through F-37.

[~~46~~42] See discussion in State Water Board Order WQ 2004-0010 (*Woodland*), pp. 4-8.

transformation of ammonia to nitrate in the storage ponds and subsurface may be occurring.[~~47~~43] Leakage of wastewater from the ponds along with subsequent nitrification could lead to nitrate concentrations in groundwater well above the maximum contaminant level.

Based on the available evidence in the record, the Board concludes that at least some of the Facility's activities have adversely affected groundwater underlying the site. The groundwater mounding provides physical evidence of a release from the Facility. Groundwater monitoring data from wells downgradient from the unlined ponds show nitrate and EC levels that exceed the applicable Basin Plan objectives. Although it is unclear whether the pre-discharge EC values in the groundwater underlying the Facility were elevated, it is clear that the EC concentrations currently existing within the downward-and-outward flowing groundwater mound could only have been caused by the ongoing downward percolation of wastewater discharged within the Facility. The Board concludes that wastewater releases from the unlined storage ponds have resulted in nitrate and EC concentrations above the applicable Basin Plan objectives in the underlying groundwater. Therefore, the City's discharge of wastewater to the unlined ponds does not qualify for an exemption from Title 27 at the present time.

As explained previously, there is insufficient evidence in the record to assess whether naturally occurring concentrations of some constituents, such as EC, in groundwater underlying the Facility exceed the applicable Basin Plan objectives. Thus far, the City has not provided sufficient information to demonstrate that naturally occurring concentrations of salts exceed the applicable objectives, and the Central Valley Water Board has not made a determination on this issue. The Board notes that the mound exerts such a strong influence on the underlying groundwater that it makes a determination of "naturally occurring" background concentrations extremely difficult. The mound, which is composed of wastewater draining from the surface, induces flow down and away from the Facility. Because the mound interferes with groundwater flow across the site, it is difficult at this time to determine what upgradient, or background, conditions might be. In any event, the City bears the burden of providing sufficient evidence to demonstrate that its discharge complies with the Basin Plan, and, in particular, that the discharge meets Basin Plan objectives or naturally occurring concentrations, whichever values are higher.

4. Additional Contentions

[~~47~~43] Final Report, fn. ~~26~~31, *ante,* at pp. 6-11; Report of Waste Discharge, fn. 1, *ante*, p. 45.

a. Disposal of Biosolids

During the summer months, the City mixes a biosolids slurry with storage pond wastewater and industrial wastewater and applies this mixture by flood irrigation to the agricultural fields. The solids content of the slurry is between approximately 2 and 4 percent. CALSPA contends that land application of the biosolids wastewater mixture is not exempt from Title 27 because the bulk concentrations of waste constituents in the sludge in units of milligrams per kilogram (mg/kg) violate water quality objectives. In addition, CALSPA asserts that the wastewater mixture, when applied to the agricultural fields, will result in groundwater degradation, due to the very shallow groundwater depths at the site.

The evidence in the record is insufficient to determine whether the field application of the biosolids wastewater mixture complies with the Basin Plan. As the Board concluded above, the monitoring that has been done to date at the Facility has been inadequate to demonstrate that the City's land disposal activities comply with the Basin Plan. In addition, it is infeasible to isolate and assess the water quality impacts of applying this wastewater mixture to land due to the masking effects of the nitrogen-rich and salt-rich groundwater mound underlying the facility unless other waste constituents are tested.

The bulk content of waste constituents in the sludge is not relevant. The bulk concentrations do not indicate what the resulting concentrations will be once the slurry is diluted in the wastewater mixture and applied to the fields. The City's monitoring of the biosolids wastewater mixture applied to the fields for priority pollutants indicates that metals are not a concern. While the bulk concentrations of coliform and nitrogen are high, it is not clear what coliform values or nitrogen concentrations would be mobilized for these constituents once the biosolids are diluted with wastewater and applied to the fields.

In the onsite fields surrounding the ponds, the distance to groundwater from the land surface is between 2 and 14 feet, and this short distance to groundwater may be a critical factor in assessing whether the field application of wastewater causes adverse water quality impacts. The distance to groundwater is also a concern in those portions of the fields initially receiving furrow or flood-irrigation of the wastewater mix. Each initial application area at the head end of a field has a considerably longer time period for the downward movement of wastewater to occur than at the other end of the field. An additional concern related to the land application of the biosolids wastewater mixture is that, except for nitrogen compounds and

potassium, the majority of the TDS is non-nutritive. Because plants do not have a significant uptake of these salts, they tend to move unchanged down to groundwater.

b. Industrial Wastewater

CALSPA contends that the industrial waste stream does not qualify for a Title 27 exemption because the cannery wastewater exceeds water quality objectives for nitrogen and EC. Further, the other waste generators are capable of producing wastewater containing metals and other hazardous constituents.

There is insufficient evidence in the record to assess this contention. The EC and TDS values for the industrial waste stream generated during the canning season often do exceed water quality objectives. The food processing wastewater also contributes significant nitrogen loading. The salts in this waste stream are of particular concern, as discussed above, because the majority of the salts are expected to move directly to groundwater. However, the waste stream is mixed with other liquid wastes before it is applied to the agricultural fields. Therefore, the focus must be on the wastewater mixture that is applied to the fields, and our conclusions on the potential water quality impacts of the land application of the biosolids wastewater mixture apply as well here.

There are limited data in the record on the quality of the other industrial waste streams discharged by the City. In 2000, the Central Valley Water Board required the City to investigate whether three metal finishers were discharging hazardous waste to the industrial influent line. Based on data collected between 1997 and 1999, the Central Valley Water Board determined that the constituents in all samples did not exceed the hazardous waste levels specified in the Title 22 regulations; however, the investigation was limited to metals and fluoride.[~~48~~44] The record does not contain data for all users nor for all pollutants, such as organic pollutants, that could be present in the wastewater. The Central Valley Water Board has addressed this issue by requiring the City to submit an industrial influent characterization study.

c. Wastewater Characterization

Additionally, CALSPA contends that it is not appropriate to exempt the secondary treated wastewater from Title 27 because this waste stream has not been adequately

[~~48~~44] See letter from Del Kerlin, Assistant Wastewater Treatment Superintendent, City of Lodi, to Robert Fagerness, Central Valley Water Board (Feb. 8, 2001), AR, vol. 5, item 183.

characterized. CALSPA asserts that secondary effluent can be expected to have more contaminants and at higher concentrations than tertiary-treated effluent.

CALPSA's concern about wastewater characterization has merit. The secondary waste stream is stored in the onsite ponds and applied to the agricultural fields at the Facility. As explained previously, there is very little monitoring information on the wastewater in the ponds, other than for nitrogen and salts. Order No. R5-2007-0113 contains only two effluent limitations, for BOD and suspended solids, that apply to the discharge of secondary effluent to the onsite ponds. The Central Valley Water Board has recognized the need to better characterize wastewater in the ponds and has required additional pond monitoring. To the extent that secondary effluent is mixed with industrial wastewater and the biosolids slurry and applied to the agricultural fields, the conclusions on the wastewater mixture discussed above apply here as well.

5. Action on Remand

The Board has concluded that the monitoring performed to date at the White Slough Facility is inadequate to show that the City's land disposal activities comply with preconditions for an exemption from Title 27. In addition, evidence in the record indicates that the releases of wastewater from the onsite storage ponds have caused the underlying groundwater to exceed the applicable Basin Plan nitrate and EC objectives. Therefore, the findings in Order No. R5-2007-0113 must be revised, on remand, to reflect that the City's land disposal activities do not currently meet the criteria for an exemption. Until the City provides sufficient evidence to the Central Valley Water Board that it meets the preconditions for an exemption and the board finds that the City qualifies for the exemption, the Central Valley Water Board can regulate the City's land disposal activities under an appropriate enforcement order, such as a time schedule order, or under an appropriate time schedule included in Order No. R5-2007-0113.[~~49~~45]

To demonstrate compliance with the exemptions from Title 27, the City must develop an appropriate monitoring program that adequately characterizes groundwater quality and the wastewater applied to land and that is capable of demonstrating that the land application of wastewater complies with the Basin Plan. The Board notes that Order

[~~49~~45] See Wat. Code, §§ 13263, subd. (c), 13300.

No. R5-2007-0113 contains expanded monitoring requirements that may address this deficiency, although, as noted previously, the monitoring frequency for priority pollutants in the

groundwater, pond wastewater, and wastewater used for agricultural irrigation is probably inadequate to meaningfully assess groundwater impacts.

The City has several options to address the waste releases from the storage ponds to ensure consistency with Title 27. The City can line the ponds to prevent waste releases to groundwater. Alternatively, the City can improve the quality of wastewater discharged to the ponds in order to ensure that waste releases comply with Basin Plan groundwater objectives. As stated previously, the City is proposing repairs and operational improvements to the Facility that could significantly reduce nitrogen concentrations in the wastewater effluent. These include redirection of the biosolids lagoon supernatant, repair of the leaking municipal influent pipe, and improvements to enhance nitrification and denitrification. Done properly, the expanded monitoring program may be able to assess whether these changes are successful. Operational and design improvements to the onsite ponds can also be evaluated to address groundwater quality impacts. The City should consider enhanced pretreatment requirements for its industrial dischargers. In addition, the City can improve the treatment of the municipal effluent applied to land beyond secondary standards.

With respect to salt management, the Board notes that Order No. R5-2007-0113 requires the City to prepare a salinity evaluation and minimization plan to address salt sources and to provide annual progress reports on salinity reductions in its discharges to Dredger Cut and the agricultural fields.[~~50~~46] Experience shows that sources of salt in municipal wastewater can be managed and reduced. Likewise, the City can control salinity in the untreated industrial wastewater line through pretreatment requirements. The Board recognizes that elevated salinity in surface water and groundwater throughout the Central Valley is an increasing problem. The State Water Board and the Central Valley Water Board have initiated a comprehensive effort to address salinity problems in the valley and to adopt long-term solutions that will lead to enhanced water quality and economic sustainability.

B. Flooding

Issue: CALSPA contends that Order No. R5-2007-0113 authorizes the application of biosolids to lands within the 100-year floodplain in violation of federal regulations governing the use of biosolids as a soil amendment.

[~~50~~46] Order No. R5-2007-0113, VI.C.3.b.

Discussion: The Board concludes that Order No. R5-2007-0113 does not violate the federal regulations, but that the order should be revised to require management practices that prevent biosolids discharges to surface waters. Order No. R5-2007-0113 requires that the use and disposal of biosolids comply with the standards in part 503 in title 40 of the Code of Federal Regulations, governing the use of biosolids as a soil amendment. CALSPA contends that these regulations prohibit the application of biosolids to lands that may be flooded or in such a manner that biosolids may enter surface water or wetlands. While the regulations clearly prohibit application of biosolids to land "that is flooded," the regulations do not directly address the application of biosolids to lands within a floodplain.[~~51~~47]

About half of the City's agricultural fields are located within the 100-year floodplain and are not protected from inundation during a 100-year flood event. Winter crops are grown in these areas and may be irrigated with wastewater during the winter. Biosolids, however, are only applied to the corn fields, which are tilled in every year in the fall. Therefore, biosolids that were applied to the agricultural fields during the irrigation season would be incorporated into the soil before the start of the rainy season. In addition, the western agricultural fields are bordered by levees on the west and cannot naturally drain to the Delta. If the levees are overtopped due to flooding, the floodwaters tend to remain onsite until they drain off the agricultural fields through the tailwater system.

Order No. R5-2007-0113 requires the City to prepare and implement a wintertime irrigation management plan to minimize water quality impacts during flooding events.[~~52~~48] The management plan must include land application operations and management practices to "minimize or prevent washout of . . . biosolids during 100-year flood events." In State Water Board Order No. 2004-0012-DWQ, this Board adopted general waste discharge requirements governing the use of biosolids as a soil amendment. The general order prohibits the "discharge of biosolids from . . . applications areas to . . . surface waters, or to surface water drainage courses."[~~53~~49] The general order does not apply to the City's activities. Nevertheless, the Board concludes that, at a minimum, Order No. R5-2007-0113 should be revised to require that the management plan address only practices that "prevent," rather than "minimize," biosolids discharges to surface waters.

[~~51~~47] 40 C.F.R. § 503.14(b).

[~~52~~48] Order No. R5-2007-0113, VI.C.3.c.

[~~53~~49] State Water Board Order No. 2004-0012-DWQ, Prohibition A.6.

C. Chronic Toxicity

Issue: CALSPA objects to Order No. R5-2007-0113 on the ground that it fails to include a numeric effluent limitation for chronic toxicity regulating the discharge of tertiary-treated wastewater to Dredge Cut.

Discussion: The Board previously addressed this issue in a precedential decision in Water Quality Order 2008-0008 (*City of Davis*), adopted on September 2, 2008. In that order, the Board concluded that a numeric effluent limitation for chronic toxicity was not appropriate in the permit under review, but that the permit had to include a narrative effluent limitation for chronic toxicity. In that case, the Central Valley Water Board had determined that the discharge had the reasonable potential to cause or contribute to an excursion above the Basin Plan's narrative toxicity objective. The Central Valley Water Board reached the same determination on the City's discharge. Therefore, on remand, the Central Valley Water Board must amend Order No. R5-2007-0113 to add an appropriate narrative chronic toxicity limitation.

III. CONCLUSIONS

Based on the above discussion, the Board concludes that:

1. The appropriate exemption for the Central Valley Water Board to apply to the wastewater mixture applied by the City to land is subsection (b) of section 20090 of the Title 27 regulations;

2. Order No. R5-2007-0113 does not contain findings supporting the conclusion that the City's land disposal activities qualify for an exemption under Title 27;

3. The monitoring that has been conducted, to date, is inadequate to demonstrate that the City complies with the precondition for an exemption under Title 27 that the discharge comply with the Basin Plan;

4. Evidence in the record indicates that releases of wastewater from the City's unlined storage ponds have caused the underlying groundwater to contain nitrate and EC levels that exceed Basin Plan objectives;

5. Evidence in the record is insufficient to determine whether the field application of the biosolids wastewater mixture complies with the Basin Plan;

6. Evidence in the record is insufficient to determine whether the discharge of untreated industrial wastewater to the storage ponds or to the agricultural fields complies with the Basin Plan;

7. The wastewater mixture applied to land has not been adequately characterized and there is insufficient evidence in the record to assess the water quality impacts of discharging this waste stream to the ponds or to the agricultural fields;

8. Order No. R5-2007-0113 must be revised to reflect that the City's land disposal practices do not currently meet the preconditions for an exemption from Title 27;

9. Order No. R5-2007-0113 does not violate the federal regulations in part 503 of title 40 of the Code of Federal Regulations governing the use of biosolids as a soil amendment;

10. Order No. R5-2007-0113 must be revised to require that the wintertime irrigation management plan include practices that only "prevent," rather than "minimize," the discharge of biosolids to surface waters;

11. Order No. R5-2007-0113 must be revised to include an appropriate narrative effluent limitation for chronic toxicity.

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IV. ORDER

IT IS HEREBY ORDERED that, for the reasons discussed above, Order No. R5-2007-0113 is remanded to the Central Valley Water Board for reconsideration and revision, consistent with the conclusions of this order.

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on July 7 ~~March 17~~, 2009.

_____
Jeanine Townsend
Clerk to the Board